APRIL 4, 1936

THE LANCET

Offices: 7, ADAM STREET, ADELPHI, W.C.2

Telegrams: LANCET, RAND, LONDON. Telephone: TEMPLE BAR 7228 and 7229.

No. XIV., OF VOL. I., 1936. No. 5875. VOL. CCXXX. LONDON, SATURDAY, APRIL 4, 1936. Founded 1823. PUBLISHED WEEKLY. Registered as a Newspaper. Pp. 136—Price 1s. Annual Subscription: Inland £2 2s. Abroad £2 10s.

OXFORD MEDICAL PUBLICATIONS.

SEE PAGE 2

IDEAL BIRTH.
HOW TO GET THE FINEST CHILDREN.
By TH. H. VAN DE VELDE, M.D.
(*Author of "Ideal Marriage."*)
Demy 8vo. 10s. 6d. net.
"This book is full of knowledge and wisdom and understanding. It is written by a gynecologist of experience. . . . He is writing for a public of fathers and mothers to be, nurses and midwives, doctors and the intelligent layman. . . . It cannot fail to impress itself upon many readers."—MEDICAL PRESS AND CIRCULAR.
Wm. Heinemann (Medical Books) Ltd., 99, Great Russell-street, London, W.C.1.

TUMOURS OF THE BREAST.
THEIR PATHOLOGY, SYMPTOMS, DIAGNOSIS AND TREATMENT.
BY SIR LENTHAL CHEATLE AND MAX CUTLER.
"One of those rare books, a clinical treatise inspired by a truly scientific spirit."—THE LANCET.
12" × 8". viii + 596 pp., 468 illus., 18 col. plates. 50s. net.
Prospectus from Ed. Arnold & Co., 41–43, Maddox-st., W.1.

NOW READY. SECOND EDITION.
DISEASES OF THE RECTUM AND COLON
AND THEIR SURGICAL TREATMENT.
BY
J. P. LOCKHART-MUMMERY,
F.R.C.S. ENG., M.A., M.B., B.C. CANTAB.,
Senior Surgeon to St. Mark's Hospital.
Pp. viii + 616, with 247 Illustrations. Price 35s.

Baillière, Tindall & Cox, 7 & 8, Henrietta-street, London, W.C.2.

NOW READY. 2nd Ed. in 1 Vol., 854 pp. 811 Illus.
EMERGENCY SURGERY. 50s. net; postage 8d.
By HAMILTON BAILEY, F.R.C.S.
BRISTOL: JOHN WRIGHT & SONS LTD. LONDON: SIMPKIN.

FRACTURES.
By MEURICE SINCLAIR, C.M.G., M.B., CH.B. (EDIN.).
With an Introduction by Sir ROBERT JONES, Bt., F.R.C.S.
Pp. 550. 337 X ray photographs, photographs and diagrams. 24s. net.
Constable & Co. Ltd., London.

UROLOGY IN GENERAL PRACTICE
(*General Practice Series.*)
By ALEX. E. ROCHE, M.A., M.D., M.Ch., F.R.C.S.
3 Coloured Plates & 40 Figs. Demy 8vo. 17s. 6d. net; post. 6d.
"Mr. Roche not only knows what the practitioner requires, but manages to supply it in an interesting manner, and in excellent English."—LANCET.

London: H. K. Lewis & Co. Ltd., 136 Gower Street, W.C.1.

SECOND EDITION
READY NEXT WEEK
GREEN-ARMYTAGE AND DUTTA'S
TEXT-BOOK OF MIDWIFERY IN THE TROPICS
Revised, largely rewritten and brought up to date by
V. B. GREEN-ARMYTAGE, M.D. (Bris.), F.R.C.P. (Lond.), F.C.O.G., and
P. C. DUTTA, M.B. (Cal.), F.R.C.S. (Edin.)
Price 12*s.*, postage 6*d.*
Butterworth & Co. (India), Ltd., Bell Yard, Temple Bar, London, W.C.2.

THREE GREAT BOOKS
PUBLISHED BY
SAUNDERS
See Advertising Page 5

By H. CRICHTON-MILLER, M.A., M.D., M.R.C.P., Hon. Senior Physician, Inst. of Med. Psychology.
INSOMNIA. An outline for the Practitioner.
Edward Arnold & Co., 41–43, Maddox-st., W.1. Price 10*s.* 6*d.*
PSYCHO-ANALYSIS AND ITS DERIVATIVES.
Thornton Butterworth, Ltd., 15, Bedford-st., W.C.2. Price 2*s.* 6*d.*

BY W. SAMPSON HANDLEY, M.S. LOND.,
F.R.C.S., Surgeon to the Middlesex Hospital.
CANCER OF THE BREAST AND ITS TREATMENT.
Second Revised Edition. With 82 Illustrations. 30s. net.
(John Murray.)
THE GENESIS OF CANCER: A STUDY OF THE GENETIC RELATIONSHIP OF LYMPH-STASIS AND CANCER.
Just Published. 113 Illustrations. 21s. net.
(Kegan Paul, Anglo-French Library.)

DISEASES OF THE THYROID GLAND.
WITH SPECIAL REFERENCE TO THYROTOXICOSIS.
By CECIL A. JOLL, M.S., B.Sc., F.R.C.S. (Eng.).
Crown 4to. Fully Illustrated. £3 3s. net.
"Mr. Joll has presented his fellow practitioners and students with a monumental volume. They need not trouble to search the literature published up to the time this volume went to press, for they will find everything relevant within its covers."
—BRITISH JOURNAL OF SURGERY.
William Heinemann (Medical Books) Ltd., 99, Great Russell-street, London, W.C.1.

H. K. LEWIS & Co. Ltd., *Medical Publishers and Booksellers*
Textbooks and Works in Medical, Surgical, and General Science of all Publishers
Medical Stationery, Loose-leaf Case-books, Card Index Systems, Filing Cabinets, Name-plates, etc.
FOREIGN BOOKS, Medical and Scientific. Department for SECOND-HAND BOOKS, 140 Gower Street.
MEDICAL AND SCIENTIFIC LENDING LIBRARY
Annual Subscription, Town or Country, from One Guinea. *Prospectus on application.*
EASTER HOLIDAYS, 1936
ALL DEPARTMENTS WILL BE CLOSED APRIL 10TH, 11TH, 12TH AND 13TH
H. K. LEWIS & Co. Ltd., 136 GOWER STREET, LONDON, W.C.1
Telegrams: "PUBLICAVIT, WESTCENT, LONDON." Telephone: MUSEUM 7756 (3 lines).

ARCHANIUM

for **RHEUMATISM, NEURITIS** and **FEVERS**

Free Samples and Literature from:—

THE PHENOLAINE CO., 43, Brewer Street, London, W.1

THE TONOSCILLOGRAPH

(Designed by Prof. J. PLESCH)

for **MEASURING** and **RECORDING BLOOD-PRESSURE**

Descriptive Illustrated Circular, with references to international medical literature, from leading surgical equipment houses, or from the distributors:

HAWKSLEY & SONS LTD.
83, Wigmore St., London, W.1

Made in France and Germany
BRITISH PATENT No. 319265

The Tonosciliograms produced by this apparatus enable changes in blood-pressure to be accurately traced under varying conditions. The curves not only indicate blood-pressure, but also enable the state of the vascular system to be diagnosed and oscillations to be measured with a higher degree of accuracy than is possible by any other method.

Samples and literature on request • SCHERING LIMITED 188/192 High Holborn • London W C 1

APRIL 4, 1936

THE LANCET

A JOURNAL OF BRITISH AND FOREIGN MEDICINE, SURGERY, OBSTETRICS, PHYSIOLOGY, CHEMISTRY, PHARMACOLOGY, PUBLIC HEALTH, AND NEWS

No. 5875 LONDON, SATURDAY, APRIL 4, 1936 CCXXX

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

Differential Diagnosis of Diseases of the Colon (Dysentery and Colitis). By P. MANSON-BAHR, F.R.C.P.—(*Coloured Plate*)—(*To be continued*) 759
Medical Problems in Mineral Metabolism. By R. A. MCCANCE, F.R.C.P. II.—Sodium Deficiencies in Clinical Medicine.—(*Continued*) 765
Mandelic Acid and Ammonium Mandelate in the Treatment of Urinary Infections. By H. E. HOLLING, M.R.C.P., and R. PLATT, F.R.C.P. 769
X Ray Appearances of the Lungs of Electric Arc Welders. By A. T. DOIG, M.B., and A. I. G. MCLAUGHLIN, M.R.C.P.—(*Illustrations on Plate*) 771
Some Effects of Prolonged Administration of Œstrin in Rats. By C. S. MCEUEN, M.D., H. SEALE, M.D., and Prof. J. B. COLLIP, M.D., F.R.S.—(*Illustrations on Plate*) 775
Tumour of the Pituitary Induced with Follicular Hormone. By Prof. B. ZONDEK, M.D.—(*Illustrated*) 776

CLINICAL AND LABORATORY NOTES

Nineteen Months' Hunger-strike. By Major H. B. ROSAIR, L.R.C.S. 778
Extradural Hæmorrhage in a Child of 13 Months. By A. F. GOODE, F.R.C.S. 779
Partocain L: A Report on 160 Cases. By Capt. A. NABI, D.M. 779

MEDICAL SOCIETIES

Medico-Legal Society: Debatable Medico-Legal Episodes 781
Royal Society of Medicine: Section of Radiology 782
North of England Obstetrical and Gynæcological Society 783

REVIEWS AND NOTICES OF BOOKS

Insulin: Its Production, Purification, and Physiological Action. By D. W. Hill, Ph.D., and F. O. Howitt, Ph.D. 784
Surgical Diseases and Injuries of the Genito-urinary Organs. By Sir J. Thomson-Walker, F.R.C.S. Edited by K. Walker, F.R.C.S. 784
Die Störungen des Lichtreflexes der Pupille. By Dr. O. Löwenstein 785
History of St. Thomas's Hospital. By F. G. Parsons, F.R.C.S. 785
The Treatment of Asthma. By F. T. Harrington, M.R.C.S. 786

LEADING ARTICLES

UNSCRUPULOUS ADVERTISING 787
ŒSTRIN, TUMOURS, AND THE PITUITARY 788
CANCER OF THE STOMACH 788

ANNOTATIONS

New Statutes for Old 789
The Risks of Breech Delivery 790
Jhin-Jhinia 790
Filarial Migration in the Mosquito 790
Hysteroscopy 791
Problems of the Family 791
Pain in Psychopathological Conditions 792
More Tumours of the Islets of Langerhans 792
Diagnosis and Prognosis in Poliomyelitis 793
Addendum to the B.P. 1932 793
Constitution and Disease 793
Illicit Traffic in Narcotic Drugs 794
A Final Lecture 794

PROGNOSIS

XCV.—Prognosis of Acute Poisoning. By H. L. MARRIOTT, M.R.C.P. 795

NEW INVENTIONS

A Retrograde Cystoscope. By T. J. D. LANE, M.D.—(*Illustrated*) 786

SPECIAL ARTICLES

In Honour of Almroth Wright 797
Medicine and the Law: Heart Disease as an Accident 799
United States of America 800
Vienna: Psittacosis in Cage-birds 801
Budapest: The Lex Venerea 801
Ireland: Irish Hospitals Sweepstakes.—Dr. John Mills 802
Fothergill Testimonial Fund 806
Infectious Disease in England and Wales 810

CORRESPONDENCE

Treatment by Prolonged Narcosis (Dr. R. Ström-Olsen) 803
The Nutrition Question (Dr. E. P. Poulton, Dr. W. M. Feldman, Dr. V. Freeman) 803
Food Production (Dr. B. Dunlop) 805
Scurvy in the Adult (Dr. W. A. Ramsay) 805
Oxygen Administration (Dr. J. Argyll Campbell) 805
Societies Charitable and Uncharitable (Sir Leonard Rogers, F.R.S.) 805
Epilepsy and Allergy (Dr. C. Allen) 805
Carcinoma of the Cervix in Nulliparous Women (Miss E. Hurdon, M.D.) 806
A Question of Professional Confidence 806

OBITUARY

Sir Archibald Edward Garrod, M.D., F.R.S.—(*With portrait*) 807
Sir James Smith Whitaker, M.R.C.S.—(*With portrait*) 809
The late Mr. A. R. Tweedie 810

THE SERVICES

Royal Naval Medical Service.—Royal Army Medical Corps.—Royal Air Force.—Indian Medical Service.—Deaths in the Services 796

PARLIAMENT

Notes on Current Topics: Advertisement of Medicines and Surgical Appliances — Public Health (London) Bill 811
House of Commons: Training Camps—Medicine Stamp Duty — Compensation for Occupational Diseases—Milk Designations 813

PANEL AND CONTRACT PRACTICE

Secrecy of Medical Records.—Surgery Visitation 815

MEDICAL NEWS

University of London 816
University of Manchester 816
University of Dublin 816
Westminster Hospital 815
Royal Northern Hospital 806
Brit. Coll. of Obst. & Gyn. 816
Atmospheric Pollution 816
Hunterian Society 816
Central Association for Mental Welfare 816
British Red Cross Society 816
Post-graduate Courses in Tuberculosis 816
Royal Sanitary Institute 816
Food Production on the Continent 817
Medical Panel for Nurses' Examinations 817
A Patients' Library for the Middlesex Hospital 817
King's College Hospital 817
Royal Free Hospital 817

NOTES, COMMENTS, AND ABSTRACTS

The Overclothed Boy. By JOHN RIDDELL, M.D., D.P.H. 819
Estibius Psychalethes 820
Willesden Women's Welfare Centre 821
"Music Hath Charms—" 821
Fathers and Maternity 821
New Preparations: Novurit Suppositories.—Normogastrine.—Luteoantin.—Anahæmin B.D.H.—Eucortone.—Glaxo 822

Appointments 817
Vacancies 818
Births, Marriages, Deaths 818
Medical Diary 822

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY LIMITED

(FOUNDED 1892)

President: Sir CUTHBERT S. WALLACE, K.C.M.G., C.B., P.R.C.S.

Trustees for the Reserve Fund:

Rt. Hon. LORD DAWSON, P.C., G.C.V.O., K.C.B., M.D., P.R.C.P.

Sir SQUIRE SPRIGGE, M.D., F.R.C.P., F.R.C.S. Sir NORMAN G. BENNETT, M.A., M.B., B.Ch., L.D.S.

The Society was founded for the following purposes: To protect, support, and safeguard the character and interests of legally qualified Medical and Dental Practitioners; to advise and assist Members of the Society in matters affecting their professional character and interests; and to indemnify them in respect to actions, etc., undertaken on their behalf.

The Society is insured with Lloyd's Underwriters to an UNLIMITED extent in respect of all adverse costs and damages awarded against Members in any action which the Society undertakes on their behalf.

Annual Subscription: £1. Entrance Fee: 10s. Assets exceed £70,000.

No entrance fee to those joining within 12 months of registration.

Full particulars and forms of application for membership from the Secretary, Victory House, Leicester Square, W.C.2.

Telephone: GERRARD 4814.

OXFORD MEDICAL PUBLICATIONS

Some Recent Issues:

THE EARLY DIAGNOSIS OF MALIGNANT DISEASE

By **STANFORD CADE**, F.R.C.S., **MALCOLM DONALDSON**, F.R.C.S., F.C.O.G., **ARTHUR TUDOR EDWARDS**, M.D., F.R.C.S., **WILLIAM DOUGLAS HARMER**, F.R.C.S., and **R. OGIER WARD**, F.R.C.S.

"It is hardly necessary to say that the presentation of the facts by the various authors has been skilfully carried out. . . . The authors are to be congratulated upon the excellence of their work, and for packing so much vital information into so small a space. . . . This is certainly a book which should be read and pondered by all whose work brings them into daily contact with patients."—BRITISH MEDICAL JOURNAL.

Pp. 174. **8s. 6d.** net.

PAINFUL AND DANGEROUS DISEASES OF THE EAR

By **R. R. WOODS**, F.R.C.S.I.

"This is a splendid book. . . . A thorough knowledge of its contents will impart a more complete understanding of diseases of the ear than the perusal of larger textbooks. . . . We can unhesitatingly recommend it."—MEDICAL WORLD.

Pp. 194. 63 Illustrations (24 in Colour). **15s.** net.

THE TUBERCULIN HANDBOOK

By **HALLIDAY SUTHERLAND**, M.D.

"Dr. Sutherland has conferred a real service on the general practitioner."—MEDICAL WORLD.

Pp. 96. 6 Illustrations. 6 Charts. 1 Colour Plate. **7s. 6d.** net.

A SHORT ANTE-NATAL AND POST-NATAL HANDBOOK

By **KELSON FORD**, M.D., M.S.S.A.

"Another valuable contribution to the Oxford Medical series . . . should be of great practical assistance to the busy practitioner."—MEDICAL OFFICER.

Pp. 140. **6s.** net.

RADIOLOGICAL ATLAS OF CHRONIC RHEUMATIC ARTHRITIS

By **S. GILBERT SCOTT**, M.R.C.S., L.R.C.P., D.M.R. & E.

"This beautifully got-up volume . . . will be of great value to all interested in the subject."—PRACTITIONER.

Pp. 88. 30 Full-sized Radiographs. **25s.** net.

X-RAY INTERPRETATION

By **H. CECIL H. BULL**, M.B., M.R.C.P.

"A book that has been needed for some time back. It fills a definite gap. . . . We have no hesitation in recommending it."—BRITISH JOURNAL OF RADIOLOGY.

Pp. 412. 280 Illustrations. **21s.** net.

A PRACTICAL MANUAL OF DISEASES OF THE CHEST

By **MAURICE DAVIDSON**, M.D., F.R.C.P.

"The most useful book on diseases of the chest that has appeared for many years."—BRISTOL MEDICO-CHIRURGICAL JOURNAL.

Pp. 540. 199 Illustrations. 1 Colour Plate. **42s.** net.

SPEECH IN CHILDHOOD: Its Development and Disorders

By **GEORGE SETH**, M.A., B.Ed., Ph.D., and **DOUGLAS GUTHRIE**, M.D., F.R.C.S., F.R.S.E.

"Unreservedly to be recommended."—BRITISH JOURNAL OF CHILDREN'S DISEASES.

Pp. 234 46 Illustrations. **10s. 6d.** net.

HÆMOCHROMATOSIS

By **J. H. SHELDON**, M.D., F.R.C.P.

"Will surely become recognised as the classical account of this mysterious disease."—THE LANCET.

Pp. 394. 40 Illustrations. **25s.** net.

THE EARLY DIAGNOSIS OF THE ACUTE ABDOMEN

By **ZACHARY COPE**, M.D., M.S., F.R.C.S.

"Should be on the shelves of every operating surgeon."—THE LANCET.

7th Edition. Pp. 268. 33 Illustrations. **10s. 6d.** net.

Oxford University Press

AMEN HOUSE WARWICK SQUARE LONDON, E.C.4.

ADDRESSES AND ORIGINAL ARTICLES

THE DIFFERENTIAL DIAGNOSIS OF DISEASES OF THE COLON

(DYSENTERY AND COLITIS) *

BY PHILIP MANSON-BAHR, D.S.O., M.D. Camb., F.R.C.P. Lond.

PHYSICIAN TO THE HOSPITAL FOR TROPICAL DISEASES, LONDON

(WITH COLOURED PLATE)

THE subject of dysentery has extended enormously within recent years, and we at the present time possess a more comprehensive knowledge of the ætiology, diagnosis, and treatment of this condition than ever before.

The term "dysentery" itself denotes a symptom-complex; that is, the appearance in the stool, or in the form of an exudate derived from the bowel wall, of blood and mucus, either together or passed separately. It denotes therefore not one disease, but a whole congeries of conditions, fundamentally different from one another, to which this one sign is common.

The classification shown below is founded, as far as possible, upon an ætiological basis. It groups together all the different conditions, whether peculiar to the tropics or not, in which diarrhœa and dysenteriform symptoms are found. The list is a formidable one, but even now may not be complete.

CLASSIFICATION OF THE DYSENTERIES AND ALLIED DISORDERS

THE DYSENTERIES

1. Bacillary dysentery.
2. Protozoal dysentery.
   (*a*) Amœbiasis.
   (*b*) Balantidiasis.
3. Helminthic dysentery.
   (*a*) Bilharziasis.
   (*b*) Œsophagostomiasis and other worm infections.

THE PSEUDODYSENTERIES

1. Coccidiosis.
2. Giardiasis.
3. Flagellate diarrhœa.
4. Malarial dysentery.
5. Leishmanial dysentery.

PATHOLOGICAL AFFECTIONS OF THE COLON RESEMBLING DYSENTERY

(*a*) *Colitis Group*

1. Mucous colitis and spastic colon.
2. Idiopathic ulcerative colitis.
3. Membranous colitis.
4. Colitis produced by foreign bodies.
5. Toxic colitis: (*a*) mercurial poisoning; (*b*) food poisoning (paratyphoid B); (*c*) uræmic colitis.

(*b*) MISCELLANEOUS GROUP

1. Tuberculosis of colon.
2. Syphilitic disease of the bowel.
3. Lymphogranuloma inguinale and rectal stricture.
4. Malignant disease and polyposis.
5. Diverticulitis.
6. Simple polypus.
7. Intussusception.
8. Internal hæmorrhoids.

The average person regards dysentery as being necessarily a somewhat disagreeable, or even dangerous, accompaniment of life in the tropics; but the genuine seeker after knowledge is bound to confess that the term "tropical" as applied to dysentery is more convenient than real. Many of these diseases are found all over the world, and the conviction has gradually been forced upon us that their prevalence in the tropics is rather due to the lack of sanitary facilities than to any other dominating circumstance. In tropical lands, moreover, may be found many different forms of bowel diseases, and it is dangerous to presume that a patient from the tropics who is passing blood and mucus in the stools is necessarily suffering from one or other of the better known dysenteries, of which the ætiology is now well understood.

The diagnosis of dysentery, therefore, becomes a peculiarly definite clinical study, and it will be admitted that it is one of first-rate importance—mainly because the methods of treatment, as at present understood, differ so fundamentally that incalculable damage may be done by their inappropriate use.

Bacillary Dysentery

Bacillary dysentery is an acute epidemic disease whose ravages are nowadays mostly confined to tropical countries, where the insanitary conditions are the chief factors in its dissemination. To the student of tropical medicine it presents itself as a disease of major importance and as one of the chief causes of disability and invalidism in tropical countries. From the point of view of the settler or the government official with a growing family, a special danger lies in its liability to attack small children, and to produce in them a very serious and sometimes fatal illness. It must not be thought, however, that bacillary dysentery does not occur in more temperate climates; for cases are still met with which originate in schools and other institutions in this country. It is well known as a constant and inveterate disorder amongst patients in lunatic asylums and at least five epidemics have been recorded in Great Britain during the last 15 years.

From the point of view of the clinician, it is unfortunate that not one bacillus but several varieties of organism have been found to produce the symptom-complex of bacillary dysentery. There appears to be no special geographical distribution peculiar to the three chief forms of bacillus. The main factors which emerge are that it is comparatively easy to isolate the specific organism from the dysentery stool early in the course of the disease and when the specimen is tested within a short period of being passed by the patient. This time-factor becomes more and more important in a tropical climate, where all putrefactive processes are greatly accelerated.

Bacillary dysentery is an acute disease as a rule, but it has, as have all other acute infections, a most varied symptomatology; all grades are found, from an acute and rapidly fatal choleriform attack, to a comparatively mild and afebrile disease. In the differential diagnosis, with which this study is mostly concerned, it is important to note that its chief symptoms are due to toxic absorption of dysentery toxins from the large intestine. Bacillary dysentery, in popular language, is "lying-down" dysentery, and it is necessary to see it and to realise the pathological state of the mucous membrane of the large intestine before one can appreciate the finer points in differential diagnosis.

The dysentery bacilli attack the mucous membrane itself, which undergoes all changes from simple catarrh to complete coagulation necrosis, and this process extends throughout the whole 4½ ft. of the

* The Lettsomian lectures for 1936 delivered before the Medical Society of London on Feb. 17th and 26th and March 2nd.

large intestine, and also, in the majority of cases, spreads upwards into the lower part of the small intestine as well; so it is obvious that there is a large vascular absorbing surface to be considered in estimating the damage to the human organism produced by this infection. All stages, from hyperæmia to complete destruction of the mucous membrane, can be studied in serial sections, and the natural process of cure entails the casting off, or exfoliation, of this dead and toxic membrane and a regeneration of the cells which have been destroyed in the process.

Shiga's bacillus is responsible for the most acute and the most readily fatal forms, and this was the bacillus that loomed large in the days of the Great War. Of Flexner's bacillus it is not so easy to speak as a single whole, mainly because the bacteriologists have succeeded in subdividing it into numerous varieties. Only recently it has been recognised that there are five serological groups, or races, of this organism, which have been labelled V, W, X, Y, and Z, and no longer need we worry our heads about this and that bacillus which has been christened after one bacteriologist or another.

The latest addition to the dysentery group which has received general recognition is Sonne's bacillus, and it is probable that many of the minor forms of acute dysentery and diarrhœa which are common amongst travellers on their first introduction to the glories of tropical life are due to an infection with this organism. Sonne differs from the true dysentery bacillus in its ability to produce acid out of lactose, and, moreover, in the human body it behaves very much like members of the food-poisoning group. For it may produce either symptoms of dysentery with blood and mucus in the stools, or, on the other hand, the symptoms of a generalised blood poisoning.

ISOLATION OF CAUSAL ORGANISM

The diagnosis of bacillary dysentery by the actual isolation of the organism from the fæces is a complex process, and for complete bacteriological accuracy a period of 5–7 days is necessary. In this lies the explanation why the diagnosis of bacillary dysentery is so seldom made, and it also explains to a great extent the discrepancies which one finds in studying the vital statistics of various countries where the two main forms of dysentery, the bacillary and amœbic, exist side by side.

If the whole of the mucous membrane is severely damaged the death of the patient is bound to ensue. In lesser degrees of infection the necrotic process has a patchy distribution, and only small areas of the bowel are involved. At autopsy the dysentery bacilli can be recovered from the inflamed mucous membrane in the early stages of the disease; but once necrosis has taken place, it is only possible to isolate them by scraping away the dead and putrefying mucous membrane and culturing the exudate which lies beneath.

There is a chronic form of bacillary dysentery (Fig. 1) also to be considered. In this form, which is very important from the point of view of differential diagnosis, the more acute dysenteric symptoms are not observed, and the main symptom-complex is one of chronic diarrhœa, accompanied by anæmia and grave emaciation. Here the underlying pathology consists in grave disturbance of the mucous membrane of the large intestine by sinuous ulceration with formation of submucosal sinuses and fistulæ. Sometimes also inclusion cysts are formed in the submucosa, and in their contents the dysentery bacillus finds a convenient and safe refuge.

In these chronic dysentery bowels the dysentery bacillus, far from vanishing from the mucous membrane in a few weeks, can persist for months or even years; and though it may be comparatively easy to isolate the organism post mortem, it is very difficult to obtain it by culture from the fæces during life. It is this fact that has led me to doubt the value of routine examination for dysentery organisms; simply because failure to obtain them from the stools does not indicate that they were not present at the same time in the ulcers of the bowel.

EXAMINATION OF STOOLS

A certain amount of assistance in diagnosis may be obtained from the macroscopic appearance of the stools, though this rough-and-ready method of diagnosis cannot supplant the finer methods of bacteriological exmination. In the acute stage of bacillary dysentery the stools passed per rectum do not consist of fæcal matter. There occurs a spastic contraction of the descending and sigmoid colon, which can be palpated through the abdominal wall by the examining hand, and there is actually a damming-back of the fæcal contents; so what is passed per rectum is the inflammatory exudate, the casting off of the dead and defunct mucous membrane attacked by the dysentery bacilli. This exudate is passed out in an almost continous stream, and it is safe to term it a "dysenteric exudate." Its evacuation is accompanied by pain and spasm, or tenesmus, and the very frequent passage of the stools leads to exhaustion.

The physical characters are best expressed by saying that the exudate consists of blood-stained mucus which is viscid and jelly-like; it may be compared to red currant jelly. The microscopical examination of this exudate has been termed cytodiagnosis, and though it is at best only a rough guide it is valuable in times of stress and strain. In the bacillary dysentery exudate the predominant type of cell is the polymorphonuclear leucocyte, which constitutes something like 90 per cent. of the cells. Moreover, it has been pointed out that these cells have undergone toxic necrosis with large ring-shaped and easily visible nuclei. With these cells are found a variable number of large hyaline refractile elongated or oval cells, which are known as "macrophage cells." Very often they contain in their interior ingested red blood corpuscles, or even leucocytes, in various stages of disintegration (Fig. 2).

It is possible to demonstrate, in microscopic sections of the submucosa, that these cells are originally derived from the endothelium of the capillaries. They are obviously, then, endothelial macrophages which have undergone "hæmatophagy." These constitute about 4 per cent. of the cells found in the stools in the acute stage of bacillary dysentery, and their significance lies in the fact that they represent the reaction of the organism to an acute infection; and furthermore they are of crucial importance in differential diagnosis because the uninitiated in cytodiagnosis are liable to mistake them for stages of the dysentery amœba, *Entamœba histolytica*.

There has been a feeling throughout the years of war, and the critical years that have succeeded it, that many mistakes are being made in the differential diagnosis of the dysenteries, from the liability to mistake these body cells for the dysentery amœbæ, and many so-called "epidemics" of amœbic dysentery can be explained upon these simple grounds alone. It is not difficult to contemplate all the serious results that may accrue from a simple mis-

interpretation of this kind, which may lead to the continuous treatment and possible intoxication of the patient by emetine therapy.

In addition to these, other cells may be demonstrated, such as columnar epithelial cells, derived from the bowel surface and scattered red blood corpuscles. From continuous and daily microscopic observation of dysenteric stools I have been able to show that the cytological picture varies considerably from day to day, and that when the disease has lasted a week or more, the typical cell picture is entirely obscured.

The clearer cut the cytological picture, the easier it is to isolate the dysentery bacillus on culture. Under the most ideal conditions, as in the field laboratories in which I worked during 1916–18, no difficulty was experienced in the isolation of one or other of the well-known species of the dysentery bacilli in the earlier stages of the disease; but the longer the disease has lasted, the more difficult this isolation becomes, and the more prevalent become the atypical or aberrant forms of dysentery-like organisms, such as Morgan's bacillus. This naturally has an important bearing upon the treatment of the patient; the sooner the disease is recognised, the sooner appropriate treatment is initiated, the more rapid is the recovery. A diagnosis of bacillary dysentery demands the institution of saline treatment, the injection of antidysenteric serum, usually intravenously, into those who are most seriously afflicted with the disease, and the adoption of suitable dietary.

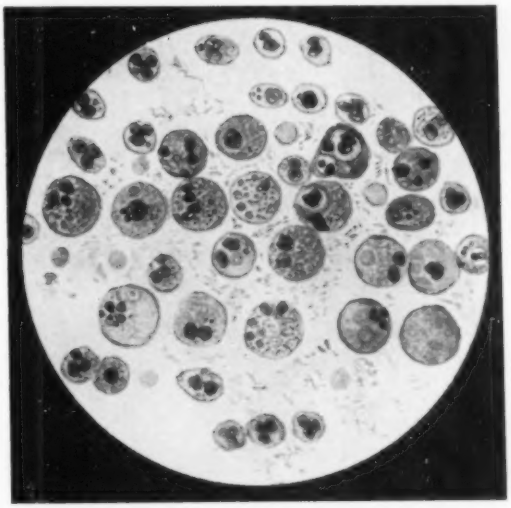


FIG. 2.—Bacillary dysentery (Flexner infection). Exudate with numerous macrophage cells. Stained with phosphotungstic hæmatoxylin to show their nuclear structure.

AGGLUTINATION TESTS

There are other scientific methods of effecting a diagnosis in bacillary dysentery. There is, for instance, the serological agglutination test. Unfortunately, from the point of view of the practical physician, this test is not of great value, for in the most acute and fulminating forms of the disease, where rapid diagnosis is essential, it very often fails. This is especially true in the acute Shiga infections, in which the agglutinins to Shiga's bacillus do not appear in the serum until the patient is convalescent from the disease, when it is obviously too late to be of practical importance. The chief value of the agglutination test lies in the differentiation of the chronic stages of the disease from other forms of colitis, and especially from the chronic "ulcerative" type.

The less acute clinical forms are usually due to Flexner's bacillus, and here the special difficulty arises in interpreting agglutination response to this bacillus. Apparently it is necessary to employ for the agglutination test a mixed emulsion of all five races of the organism, and very little importance should be attached to any result unless there is a titre of over 1 in 100.

SIGMOIDOSCOPY

Finally, there are the sigmoidoscopic appearances of the bowel. It is usually unnecessary, or even inadvisable, to employ sigmoidoscopy in the acute stages of bacillary dysentery; but where it has been performed, as by Biggam in Cairo, the appearances of the mucous membrane of the rectum tally very closely with those observed in pathological specimens (Fig. A on Plate).

Sigmoidoscopy is especially valuable in differentiating chronic bacillary dysentery from the chronic amœbic disease; in fact, sometimes it is the only method by which a differential diagnosis can be brought about. In chronic bacillary dysentery the mucous membrane of the large intestine, ranging even to the lower rectum, is covered with patches of bleeding and easily vulnerable granulation tissue. To the practised eye, this scattered appearance is characteristic, though it is difficult, on appearances alone, to differentiate it from ulcerative colitis.

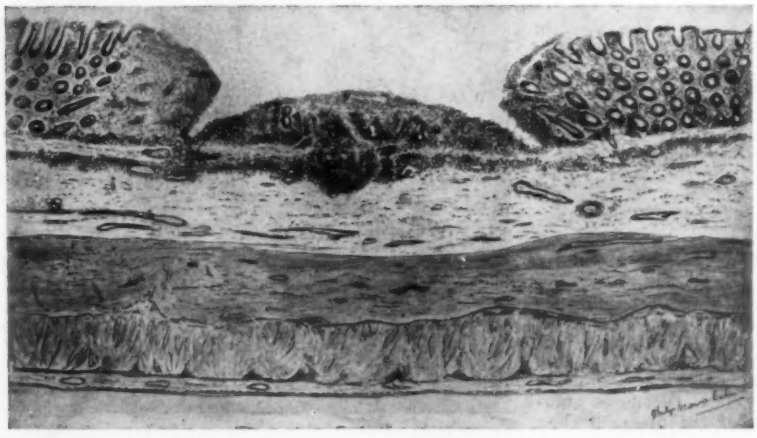


FIG. 1.—Bacillary dysentery. Shows the formation of a chronic bacillary ulcer affecting only the mucous membrane and not penetrating beneath the muscularis mucosæ. (Flexner-Y infection.)

FIG. 3.—Amœbic dysentery. Section through the base of an amœbic ulcer in the large intestine, showing large numbers of tissue-invading forms of *Entamœba histolytica* and the characteristic tissue changes in the submucosa. Note the healthy appearance of the adjacent mucous membrane.

The main point is that in bacillary dysentery there is some degree of stenosis of the bowel, accompanied by rigidity of the intestinal tube which renders the introduction of the sigmoidoscope somewhat difficult to the operator and painful to the patient (Fig. B on Plate).

This subject will be discussed further under the sigmoidoscopic diagnosis of amœbic dysentery.

Amœbiasis

Amœbic dysentery, or more correctly, primary intestinal amœbiasis, is due to the invasion of the large intestine by the *Entamœba histolytica*. In order to understand the true natural history of this disease, it is essential to envisage the dysentery amœba as originally a parasite of the submucosa.

As Dobell has pointed out, it is not in the interests of the parasite to destroy its human host, but rather to live in a state of symbiosis, or more properly, to coexist on friendly terms. There is, therefore, a continuous struggle between the ravages of the parasite and the efforts of the tissues to repair the damage effected by the entamœba, and there is also an absence, more or less, of the toxic factor which plays such a considerable part in bacillary dysentery. As will be seen, the damage to the bowel is purely local and mechanical, and results only in the destruction of a very small portion of the absorbing surface of the large intestine.

Recent experiences have pointed to the fact that amœbic dysentery is a water-borne disease. The infection is transmitted from one human being to another by the cyst form of the organism. This cyst, which has a characteristic morphology, appears in the fæces of the patient, often in enormous numbers, during the chronic stage of the disease, when the stools are formed and are fæcal in character. It is quite impossible to transmit the disease from one person to another by means of the active or vegetative form of the amœbæ. This active form, which is familiar to all students of pathology, is found only in the fæces, more especially in the blood and mucus exudate, in the active or acute stage of the disease, when the patient is passing dysenteric fæces.

The cyst, on being ingested, passes undamaged through the gastric tract, and on reaching the alkaline constituents of the small intestine the cyst wall is digested and the young amœba emerges. The observations of many investigators have shown that the next stage of the invasion of the bowel consists in the penetration of the glands of Lieberkühn by young amœbæ, till the fundus of the glands is pierced and the submucosa itself is entered. The entry is effected by means of the mechanical movements of the amœbæ as well as by cytolytic ferments which they secrete.

A typical amœbic ulcer, as seen in pathological specimens, is formed as the result of the bursting towards the lumen of the bowel, of what is, in fact, an abscess of the submucosa. The resulting ulcer is what is known as a flask-shaped ulcer—that is, one with a narrow neck and a broad base (Fig. 3).

It is easy also to envisage other results which may accrue from the presence of such a submucosal lesion; for instance, the amœbæ may invade the submucosal blood-vessels, causing thrombosis and gaining entrance to the portal blood stream, and in this way the invasion of the liver by amœbæ, which is such a frequent complication of intestinal amœbiasis, may take place. Large blood-vessels too may be penetrated by an extension of the abscess, and this may lead to a fatal intestinal hæmorrhage. If, however, the extension of the abscess should be towards the peritoneum, then the perforation of the large bowel occurs with consequent fatal peritonitis.

From the brief consideration of these pathological details we can gather the probable course of events of an amœbic infection. It will be understood that the blood and mucus exudate containing the pathogenic amœbæ is squeezed out of the ulcers by the peristaltic action of the large intestine, and this in turn explains the chief characteristic of the amœbic

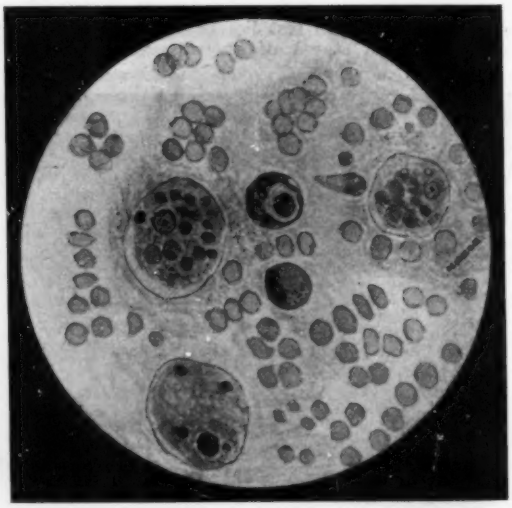


FIG. 4.—Amœbic dysentery. Exudate of amœbic dysentery showing trophozoites of *Entamœba histolytica* containing ingested red blood corpuscles. (Stained with phosphotungstic hæmatoxylin.)

stool and assists in differentiating between it and the bacillary exudate.

The patient suffering from amœbic dysentery, however acute the clinical symptoms may appear, does not bear the stigmata of an intestinal toxæmia, mainly because the toxins are not produced by the parasite itself. The lesions of the bowel are a mechanical rupture of the mucosal surface, so that the greater part remains normal in appearance and function. The course of amœbic dysentery is, therefore, usually quite apyrexial; the stools are fewer in number and more fæcal in character than in the bacillary disease, and as a rule there is no pain or abdominal tenderness. Tenesmus is extremely rare. The fact is that amœbic dysentery is a chronic prolonged disease and may coexist with comparatively good health. I have investigated and treated cases which have been known to be infected with the dysentery amœba for 30 to 40 years.

THE STOOLS

The macroscopical characters of the amœbic stool correspond with what might be expected from a study of the pathology of the disease. They are generally loose and diarrhœic in character, large in amount, and usually very offensive, owing to the decomposing blood which they contain. The admixture of this dark tarry blood has led to their comparison to "anchovy sauce."

The microscopical appearances are also of value in differentiation. In contradistinction to bacillary dysentery, the polymorphonuclear cells are almost entirely absent, and wherever some intestinal debris is present, the cells have a ragged outline and are of a "mouse-eaten" appearance. The red blood corpuscles are massed together in clumps or rouleaux, and a large number of contaminating micro-organisms are visible.

Then there are Charcot-Leyden crystals. These are generally associated with active forms of *E. histolytica* and considerable diagnostic importance has been ascribed to their presence by various authorities, such as J. G. Thomson, A. Robertson, H. W. Acton, and others (Fig. 4). It is felt, however, that some protest should be made against the practice, which has become prevalent, of diagnosing amœbic dysentery upon the presence of these crystals alone. They are found in many other pathological conditions of the large intestine, and I have seen them in association with thrombosed piles, carcinoma of the rectum, ulcerative colitis, and coccidial infection of the large intestine. It is probably more correct to state that, if these crystals are present in the fæces in large numbers, a more prolonged search should be made for the dysentery amœbæ.

Finally, as regards the entamœba itself, it must be emphasised once more that in order to find these organisms in their active state in the fæces, the specimen must be examined microscopically within a short period of being passed, and furthermore, warming of the preparation encourages the amœboid movements and renders them more easily recognisable. Sometimes, even in a blood and mucus stool, a prolonged search is necessary in order to find amœbæ, and very often they occur in clumps or in congregated masses. Sometimes, even, cases are met with in which a search of the stools has failed to reveal amœbæ, but they have been obtained subsequently in large numbers in preparations made direct from the intestinal ulcers by a proctoscopic examination. From the consideration of these circumstances it is quite easy to understand that when specimens of fæces are dispatched in containers to the laboratory by post, the correct diagnosis is often missed because the organisms are dead.

A further word of warning is necessary—namely, that when once the active *E. histolytica* is dead it disintegrates with great rapidity, and soon becomes entirely unrecognisable as such under the microscope.

In the chronic stage of the disease the difficulties of diagnosis are often considerable. Chronic amœbic

FIG. 5.—Balantidial dysentery. Section of the large bowel through an ulcer, showing the distribution of the balantidium in the submucosa.

dysentery parades itself under a great number of clinical forms, and may resemble almost any other form of chronic intestinal disease. One of the chief symptoms is diarrhœa alternating with constipation. It may, moreover, produce signs and symptoms of a chronic appendicitis or, on the other hand, it may provoke a train of events which more resemble those of diverticulitis than of any other recognisable intestinal condition.

Chronic amœbiasis is usually associated with some chronic enlargement of the liver and an earthy waxen appearance of the skin. Its absolute diagnosis rests upon the discovery of the characteristic cysts of *E. histolytica* in the fæces. These may be present in enormous numbers, or they may be extremely scanty. The recognition of these cysts with certainty can be attained only after considerable practical experience. They have to be differentiated from the somewhat similar cysts of other intestinal protozoa, which may be present in the stools, but the identification of a single cyst with certainty is as important as the recognition of many, for in this case "one swallow makes a summer."

There is another difficulty which is often encountered and which is not easy to explain, and that is the intermittent appearance of these cysts in the fæces. One day they may be extremely numerous, and on the next prolonged search may fail to reveal a single one.

DIRECT EXAMINATION OF THE BOWEL

In view of the difficulties related above, sigmoidoscopy is playing a very important rôle in the diagnosis of this condition (Figs. C, D, and E on Plate). In

the acute stage of the disease, the sigmoidoscopic appearances are quite characteristic and the amœbæ may be identified in preparations made through the sigmoidoscope from the lesions themselves. The main point that strikes the observer is the pale and somewhat anæmic appearance of the undamaged mucosa together with an extra-elasticity of the folds of the bowel itself. On the introduction of the instrument into the rectum this corrugated appearance of

FIG. 6.—Bilharzial dysentery (Egyptian case). Showing eggs of *B. hæmatobium* and *B. mansoni* deposited in the submucosa and ulcerating their way through the mucosa into the lumen of the bowel.

the mucosa becomes instantly visible. The amœbic lesions are characteristic and consist of small punched-out ulcers surrounded by red areolæ or small yellow elevations which may be compared to the craters of microscopic volcanoes. There are generally interspersed between them numerous but small submucosal hæmorrhages. In the chronic stage the lesions are so minute that they can be discovered only by the use of a magnifying eye-piece. They are represented by small indentations or puckerings of the mucosa, which represent the sites of healed or healing ulcerations. It is estimated that characteristic lesions are visible in the rectum and lower sigmoid in quite 75 per cent. of all amœbic cases. There remains, however, a residuum of 25 per cent. in which the lesions are situated higher in the bowel and beyond the reach of vision of the modern sigmoidoscope.

DIAGNOSTIC USE OF EMETINE

Before leaving the subject of amœbic dysentery it is necessary that some reference should be made to the therapeutic diagnosis of the disease. Unfortunately there always remains a small number of cases in which, although symptoms of diarrhœa and abdominal discomfort persist, yet no evidence of active amœbic infection can be verified. In these cases of doubt the experimental therapeutic injection of emetine is permissible. Should the more urgent symptoms clear up as the result of this course, then the practitioner has every right to regard the case as being one of amœbic infection. There are many grave objections to recommending this course as a routine practice, but there are instances in which it must be resorted to.

Balantidiasis

Balantidiasis is a disease closely resembling amœbic dysentery in its course, but it is produced by the largest intestinal ciliate protozoan known, the *Balantidium coli*. This is a common parasite of the pig and of many monkeys, in all of which it may cause a fatal form of dysentery. Balantidial dysentery is such a rare disease in man that it is more of a medical curiosity than anything else. The human cases which have been recorded in the United States of America, Germany, Russia, and Italy have been in people who are closely associated with pigs, such as swineherds and pork butchers, and only occasionally have fatal infections been recorded. The pathology of the disease is very similar to that of amœbic dysentery, and in sections of the colon the balantidia can be demonstrated in large numbers in the submucosa and at the bases of the characteristic ulcers (Fig. 5). They are much larger and more conspicuous than are amœbæ in a similar situation. The diagnosis of balantidiasis is easily effected by the discovery of this large and conspicuous parasite in the fæces. Unfortunately the treatment of this infection has so far proved to be very unsatisfactory.

Bilharzial Dysentery

Apparently all three species of the bilharzia parasite which inhabit man are capable of giving rise to lesions in the large intestine, which take the form of ulcers or adenopapillomata, in which the characteristic eggs of the particular parasite can be found. The three species are *B. mansoni*, *B. hæmatobia*, and *B. japonica*. The eggs of these parasites are found in the fæces and each has distinctive character, so that it is unnecessary to particularise further (Fig. 6).

The bilharzia diseases have definite and well-defined geographical distribution. *B. mansoni*, which is the chief producer of dysenteric symptoms, ranges throughout almost the whole of Africa, and is occasionally found in the West Indies and South America. Therefore it is only in persons who emanate from areas where the disease is indigenous that the suspicion of this diagnosis can be entertained. In tropical practice, of course, this is an important matter. The diagnosis is made absolute by the discovery of the eggs of the parasite in the fæces. Often they can be found in the blood and mucus with which the fæcal mass is covered, and, as a general rule, it is more advantageous to examine the outer layers of a formed motion rather than the centre portions. Rarely there is profuse diarrhœa with this infection, as in the other forms of dysentery. Some assistance is obtainable by a study of the cellular exudate in the fæces which usually contains a large number of eosinophil cells. Sometimes, especially in the case of *B. mansoni*, the characteristic eggs may be very scanty and difficult to demonstrate in the fæces, and in these, methods of concentration, such as that of Fülleborn, are employed.

The sigmoidoscopic examination is of great value and the pedunculated growths can be seen in the upper part of the rectum where they are quite characteristic. Portions of them may be removed by suitable forceps, crushed and placed under the microscope, in order to demonstrate the eggs. Sometimes in heavily infected persons, as in native Egyptians, the characteristic growths can be felt by digital examination of the rectum.

The earliest appearance of bilharzial dysentery in the bowel consists of small granulating areas

(Fig. F on Plate), and sometimes small elevated papules which more resemble tuberculosis, but these are usually seen in early European infections.

Œsophagostomiasis

As a matter of academic interest it is necessary to mention the rare nematode, *Œsophagostomum apiostomum*. This is the worm which inhabits the cæcum and colon of monkeys in Africa, the Philippines, Brazil, and China, and has been found in native prisoners in the gaols of Northern Nigeria. The female worms, which measure 2 to 3 cm. in length by 1 mm. in breadth, are found encysted beneath the mucous membrane of the large intestine and give rise to dysenteriform symptoms. The diagnosis is made by the discovery in the fæces of the eggs of the parasite. The eggs measure 60 μ in length by 40 μ in breadth, and closely resemble those of ancylostoma, except that the contained embryo is in an advanced stage of development.

(To be continued)

MEDICAL PROBLEMS IN MINERAL METABOLISM *

BY R. A. MCCANCE, M.D., Ph.D. Camb., F.R.C.P. Lond.

ASSISTANT PHYSICIAN IN CHARGE OF BIOCHEMICAL RESEARCH, KING'S COLLEGE HOSPITAL, LONDON

II.—SODIUM DEFICIENCIES IN CLINICAL MEDICINE (continued)

The Secretion of Urine

All the conditions now under discussion are liable to be accompanied by a rise in the blood-urea. O'Shaughnessy,[241 242] studying cholera in 1831–32, was, I think, the first to draw attention to this. Colin [53] noted it in 1868 in diabetic coma, so you see it is not a new discovery. It was not detected in intestinal obstruction till 1914,[319] but since that time it has frequently been observed clinically [19 29 35 36 40 44 47 58 68 71 83 94 105 113 126 159 163 168 176 184 186 202 203 204 218 219 230 254 256 258 259 260 263 277 281 284 312 315] and produced experimentally through dehydration or removal of the intestinal secretions.[10 58 77 79 84 92 102 111 112 114 115 116 117 118 120 136 141 152 159 199 240 283 329 330 331 339]

It is well recognised in Addison's disease,[13 85 130 275 292 293 305 309 311 346] It has been reported also by a number of clinical observers in an ill-defined but rather interesting group of cases, sometimes with signs of true nephritis, in which hypochloræmia, often of unproven origin, was a cardinal sign and the suggested cause of the high blood-urea.[23 25 47 153 156 225 244 261 263 268 272 304] It is possible that the high blood-ureas of uncompensated alkalosis [18 237] with hypochloræmia should be included here although there is no hyponatræmia. A considerable literature has grown up on the secretion of urine in diabetic coma which has been reviewed by McCance and Lawrence.[188] In this disease the blood-urea may be high when the patient comes under observation, or it may at this time be relatively normal and only begin to rise as insulin treatment proceeds. It may then go up in the course of 6 or 8 days to 250–300 mg. per 100 c.cm.

The post-mortem and other anatomical evidence gives no satisfactory explanation of why the blood-urea should rise in any of these diseases.[44 58 176 188 199 216 223 225] Morbid appearances have naturally been described,[294] but there is no unanimity about them and all are agreed that the kidneys are quite unlike those of chronic interstitial nephritis, sublimate poisoning, or any other condition in which a similar retention of urea may be encountered. Further, if the patient recovers from the intestinal obstruction or diabetic coma, renal sequelæ have never been recorded. One must therefore conclude that the abnormality is a temporary one of function only, and not a permanent one of structure. I wish now to discuss possible explanations of this rise of blood-urea which have been suggested from time to time. I say "suggested" purposely, for few of them have been tested experimentally. Let me begin by examining any other evidence we possess as to the function of the kidney in these conditions.

Our knowledge of the excretion of urinary constituents other than urea is unfortunately fragmentary and rather contradictory. Salt deficiency so upsets the water balance of the body that the excretion of water may become very abnormal. In both clinical [208 274 275] and experimental [267 289 290] Addison's disease, for example, the excretion of ingested water is very much delayed, but under the circumstances this is no real proof of *renal* deficiency. In chronic interstitial nephritis the kidney does not respond to ingested water with a diuresis, but here the kidney is partially destroyed and this is the primary cause of the abnormal water metabolism. For this reason I shall not include chronic interstitial nephritis in my discussion of the secretion of urine during salt deficiency. Apart from these two diseases, oliguria is the rule in clinical salt deficiency, but this is to be expected since clinically the causes of salt loss are also causes of water loss. Some author shave found that a rise in blood creatinine, or uric acid, accompanied the rise in the blood-urea,[40 58 176 203 207 219 343] and obviously if no urine is being passed this must occur. Others have found the reverse.[113 115 338] After diabetic coma the creatinine rises in the blood pari passu with the urea, but the excretion of ammonia remains normal.[188] The same is probably also true of the excretion of ammonia after severe diarrhœa [218 282 286 287 315] or loss of pancreatic juice.[136] Many have found intestinal obstruction to be accompanied by a sub-normal excretion of phenol sulphone phthalein,[71 113 199 223 263 281 319 345] but others again have shown that the secretion of the dye may still be normal even when the blood-urea has been raised or when other signs of renal deficiency are present.[259 290 319] Louria's observation is of little value as saline had been given before the phenol sulphone phthalein. This dye, however, is a comparatively insensitive test for deficient function.[76] It is, moreover, probably excreted both by glomeruli and tubules,[147 288] so that it must be regarded as an unsatisfactory substance on which to base physiological argument. Schafer [279] has stated that in experimental Addison's disease the kidney does not lose its ability to *concentrate* nitrogenous substances in the urine. We may, therefore, conclude in general terms that signs of functional renal failure are common but that the excretion of urea, as judged by the height of the blood-urea, may appear to be defective while other functions of the kidney are still relatively normal.

Besides excreting nitrogen the normal kidney helps to regulate the pH of the plasma, and this is one of the functions which may undoubtedly fail in severe salt deficiency. Failure is most obvious

---

* The Goulstonian lectures for 1936, delivered before the Royal College of Physicians of London on March 5th, 10th, and 12th. Lecture I. was published on March 21st; Part 1 of Lecture II. last week: and Lecture III. will appear in a forthcoming issue.

during a proved alkalosis when the urine may be found to be acid instead of alkaline.[1 40 71 91 105 140 218 219 238 302]

I wish now to discuss the reasons which have been suggested for these signs of renal failure.[33 35 58 85 94 256 168] Before I begin let me remind you that the volume of water excreted per day is probably controlled by humoral factors and by the pituitary gland. After mild loss of fluids by sweating, or after a reduced water intake, the volumes of urine may become very small indeed without any evidence of a reduction in the rate of glomerular filtration. Conversely the daily excretion of water may be normal or excessive when glomerular filtration and the power to excrete creatinine and urea is certainly reduced. The volume of the glomerular filtrates is always so *much* larger than the volume of urine that it is easy to see how this can be so. Extreme reduction of glomerular filtration must naturally reduce the volume of urine.

The first reason to be discussed is the fall of blood pressure. It is current knowledge that if the spinal cord is cut the secretion of urine stops because the blood pressure falls below the level at which glomerular filtration can take place. A fall of blood pressure is the rule in diabetic coma and Addison's disease,[6 188 311] and must reduce the glomerular pressure unless the efferent glomerular arterioles can maintain it.[322 342] I am satisfied that a fall in arterial blood pressure is not always the cause of the renal failure after diabetic coma,[188] and I do not think that a small fall should necessarily affect the volume of urine or the concentrating power of the tubules, provided the latter remain adequately nourished.[321]

Secondly, dehydration has often been invoked to explain the signs of renal failure.[12 92 131 159 223 281 305 346] This suggestion requires amplification in terms of what is known of renal physiology. The circulating blood,[13 158] which may be greatly reduced in volume, may only be able to fill a proportion of the normal number of capillaries in the body. If this applies to the renal circulation, the number of active glomeruli will be reduced, and hence the rate of glomerular filtration. The urine volumes will vary according to the cause of the anhydræmia. If this has been caused by severe water deprivation, the daily volumes of urine will be very small. These are the conditions met with after prolonged vomiting or excessive exposure to high external temperatures. If the anhydræmia has been caused by a loss of sodium salts, it may be accompanied by a normal fluid intake and by normal daily volumes of urine. This is the position in Addison's disease (see Lecture III.). The reduction in glomerular filtration, however, may be one of the factors which prevents the kidney developing its normal rate of diuresis after water ingestion. The excretion of solids should depend upon the rate of glomerular filtration rather than the urine volumes, although their excretion may not be quite so efficiently carried out when the volumes of urine are very small.[78]

Thirdly, a fall in plasma volume will cause a rise in the plasma proteins and hence in the colloidal osmotic pressure of the plasma. This will reduce the glomerular filtration unless the arterial blood pressure rises in compensation. We know that it does not. The efferent glomerular arterioles may of course constrict and so maintain glomerular pressure. Urine volumes should not be affected.

Fourthly, increased viscosity of the blood, which undoubtedly occurs [13 119 126 145 196 211 269 270] owing to the increased number of red cells per c.mm., may decrease the circulation-rate and so reduce the efficiency of the kidney.

Fifthly, an uncompensated alkalosis, which often accompanies loss of the intestinal secretions, may in itself greatly diminish the capacity of the kidney to excrete urea and creatinine [18 84 237] (see Lecture III.). This probably means decreased glomerular filtration. If there is no sodium deficiency an uncompensated alkalosis results in polyuria in spite of the diminished glomerular filtration, but if there is a sodium deficiency the result is an oliguria (Lecture III.). The reason for this difference is not at present clear.

Sixthly, the kidney cells may be specifically injured by salt withdrawal so that the organ cannot function efficiently.[33 85] This suggestion is difficult to refute but requires experimental support to make it an attractive explanation. Other suggestions have been made [42] which I do not intend to discuss.

Lastly, there are factors affecting the secretion of urine which we all recognise although we cannot explain. I refer to the causes of those mysterious post-operative anurias, reflex anurias, and the anurias of acute nephritis, and so on.[65 143] Equally mysterious anurias are met with experimentally.[3 5 6 61 62] Some anurias—e.g., in acute nephritis—may be due to the tubules becoming so functionless that the whole of the fluid filtered off in the glomeruli is reabsorbed again, as it is in the peripheral lymph system.[296] We may have to relegate the anuria following diabetic coma to this unsatisfactory group.

These explanations account satisfactorily for the generalised fall in renal efficiency of which we have had evidence. The excretion of water demands special consideration, and it is important to distinguish a reduction in glomerular filtration from a reduction in total urinary volume. Patients may have rising blood-ureas and other signs of diminished glomerular filtration in the presence of a copious flow of urine.[55 188 204 237]

None of the reasons so far advanced explains why the excretion of *urea* should appear to be predominantly affected. One explanation for this is the excessive tissue breakdown. We have evidence from the nitrogen balances that this is going on, and many authors have had to postulate it to explain the rising blood-ureas which have been observed in spite of high rates of excretion.[102 120 197 222 225 240 259 325 327] It would obviously be possible in this way to get very high blood-ureas with perhaps no rise in blood creatinines and no change at all in phenol-sulphonephthalein excretion. Urea-clearance tests would be invaluable under these circumstances and should always be done.

Blum considered that the rise in blood-urea was due to the "manque de sel." [25 26 27] The urea was reabsorbed to raise the subnormal osmotic pressure of the plasma. This you will remember is the normal state of affairs in the dogfish. The theory was evolved to explain the renal disorganisation following diabetic coma. It does not do so satisfactorily, for I have seen patients with reasonably high blood pressures filled with saline after coma till they were œdematous —and still no urine came. The theory does not explain the simultaneous retention of creatinine. Urea, moreover, even if reabsorbed, would not regulate the osmotic pressure of the plasma as originally conceived, for the substance permeates freely through all the tissues of the body. In the dogfish this was what was wanted because the osmotic pressure of the whole body was being raised relative to the liquid environment. In the mammal nothing can act as an efficient substitute for an extracellular electrolyte unless its distribution is limited to the

extracellular fluids. Glucose,[329] for example, or potassium chloride[118] would be quite useless. Nevertheless a consideration of the normal urea clearances and the glomerular filtration rates at high or low levels of water excretion suggests that some reabsorption of urea may always take place. Blum's theory then merely postulates the exaggeration of a normal process. Moreover, some of the experimental evidence is in keeping with reabsorption,[21 80 81] and until the results have been explained in some other way we cannot altogether dismiss reabsorption of urea as a cause of some of the high blood-ureas met with during salt deficiency. It is true that in acute water poisoning there may be no rise of blood-urea,[297] and considerable hypochloræmia and fall of serum osmotic pressure may occur in very young dogs without any rise of "Reststickstoff,"[159 160] but evidence based on the reactions of very young animals should be treated with caution. After all, new-born mice can survive an hour in pure nitrogen,[154] but no one would suggest that adult men could do the same.

Medical Importance of Salt Deficiency

Minor degrees of deficiency must be quite common in the tropics,[172 193 194] and should be suspected if the urine does not contain normal amounts of chlorides. The danger of salt deficiency to miners, stokers, and others who have to work in very hot atmospheres is now unquestioned.[76 229 314 340] While no one would attribute the gravity of diabetic coma or intestinal obstruction to salt deficiency alone, it is certain that a loss of salt may be a very serious matter and may by itself have fatal consequences. The experimental work leaves no doubt of this. Rabbits can be killed in a few days by diuretin which produces a forced excretion of chlorides in the urine.[21 109 110 222] Removal of pancreatic,[77 330] gastric,[102 136 329] or intestinal juice,[145] without interrupting the continuity of the gut, is fatal, although it seems that animals suitably nourished can survive a loss of pancreatic juice for a considerable time.[24] Whatever the actual cause of death in intestinal obstruction, no one nowadays will dispute the gravity of the loss of the extracellular salts or the value of replacing them by giving saline. This is even more obvious in the acute gastro-enteritis of children. It is not quite right to attribute the bad effects only to the removal of sodium salts, for loss of gastro-intestinal secretions means loss of water as well. If water can be taken by mouth and absorbed, then a condition more akin to simple salt loss is obtained, but, in giving saline, water and salt are restored together and in most instances the beneficial effects are due to both.

Loss of salt is such an important feature of suprarenal removal or destruction that it may almost be said to constitute the disease. Clinically it is true that salt cannot yet be regarded as a complete cure, and some of the experimental findings—e.g., the interference with fat absorption—are perhaps difficult as yet to reconcile with a simple loss of sodium salts. Harrop et al.,[128] however, have been able to keep bilaterally suprarenalectomised dogs alive and in good condition for months with sodium chloride and bicarbonate alone. Signs of deficiency at once developed when this treatment was discontinued.

Treatment

I have already touched upon this, and there is no need to emphasise facts which are already generally known. There are, however, one or two points which I should like to discuss. The first is the question of whether one should incorporate sodium bicarbonate or lactate in the solution of sodium chloride to be administered. The question arises in diabetic coma and severe diarrhœa, which produce acidosis, and also in Addison's disease. In diabetic coma the acidosis is due to substances which the administration of insulin will remove. It seems unnecessary therefore to give bicarbonate with the saline, and the tendency nowadays in this country is, I think, not to do so. After severe diarrhœa without vomiting, some bicarbonate is probably beneficial, but in the acute gastro-enteritis of children acidosis or alkalosis may be present according to whether diarrhœa or vomiting has predominated. Unless the presence of acidosis has been correctly diagnosed, it is safer to give a simple saline solution, and this should always be used in cases of alkalosis. May I remind you that the most severe alkalosis may be accompanied by an acid urine. Never be misled by the reaction of the urine into giving such a patient bicarbonate or any other form of alkali.[132] It would probably be fatal. Hartmann and others[133 134 137 212] have advocated the substitution of Ringer solution for simple saline and the addition of sodium lactate in cases of acidosis. This salt is converted slowly to bicarbonate in the body,[138 139] and is claimed to be safer and more efficient than the latter for parenteral administration.

Harrop et al.[128] combined sodium lactate or bicarbonate with the sodium chloride, which they administered to their suprarenalectomised dogs, and considered that it was an important part of their successful treatment. It may have been, and if so it is possible that the combined salts would be much more efficacious clinically than sodium chloride alone. Systematic trial will no doubt settle the matter, and meantime I think the evidence is good enough to suggest that bicarbonate should be combined with the chloride.

The second detail of treatment which I wish to discuss is whether normal or hypertonic saline should be used. This obviously depends upon the circumstances, and Hartmann has actually described six different brands of salt solutions and the indications for their use.[134] I feel that this is making things unnecessarily complicated. If one can have a complete chemical examination made of the blood, one can prescribe almost exactly the salts and water required to restore normality, but few English physicians would consider it advisable to wait for such analyses before beginning treatment; nor do I think it necessary, but my experience of children is very limited. The safest solution to use is normal saline or Ringer's solution. Hypertonic saline should only be employed when it is specially indicated as in cholera and diabetic coma—and in the latter only in reasonable quantities.

REFERENCES

190. McCance, R. A., and Watchorn, E.: Brain, 1932, lv., 91.
191. Same authors: Ibid., 1934, lvii., 333.
192. McCarthy, J. F., Stepita, C. T., Johnston, M. B., and Killian, J. A.: Jour. of Urol., 1928, xix., 43.
193. McCord, C. P., and Ferenbauch, T. L.: Milit. Surg., 1931, lxix., 608.
194. McEwen, O. R.: THE LANCET, 1935, i., 1015.
195. McGee, W. J.: Interstate Med. Jour., 1906, xiii., 279.
196. McIver, M. A., and Gamble, J. L.: Jour. Amer. Med. Assoc., 1928, xci., 1589.
197. MacKay, L. L., and MacKay, E. M.: Amer. Jour. Physiol., 1924, lxx., 394.
198. McQuarrie, I.: Jour. of Pediat., 1933, iii., 539.
199. McQuarrie, I., and Whipple, G. H.: Jour. Exper. Med., 1919, xxix., 397, 421.
200. McSwiney, B. A.: Proc. Roy. Soc. Med., 1934, xxvii., 839.
201. ,, ,, : THE LANCET, 1934, i., 641
202. McVicar, C. S.: Amer. Jour. Med. Sci., 1925, clxix., 224.
203. McVicar, C. S., and Weir, J. F.: Jour. Amer. Med. Assoc., 1929, xcii., 887.
204. Mach, R. S.: Rev. méd. de la Suisse. Rom., 1934, liv., 829.
205. Magnus-Levy, A., and Siebert, W. W.: Zeits. f. klin. Med., 1928, cvii., 197.

206. Mainzer, F., and Joffe, A.: Zeits. f. d. ges. exp. Med., 1928, lix., 492.
207. Major, R. H.: Bull. Johns Hopkins Hosp., 1923, xxxiv., 104.
208. Marañon, G., and Collazo, J. A.: Klin. Woch., 1935, xiv., 1107.
209. Marchionini, A., and Ottenstein, B.: Ibid., 1931, x., 969.
210. Marine, D., and Baumann, E. J.: Amer. Jour. Physiol., 1927, lxxxi., 86.
211. Marriot, W. M.: Physiol. Rev., 1923, iii., 275.
212. ,, ,, : Southern Med. Jour., 1934, xxvii., 130.
213. Marriott, M., and Hartmann, A. F.: Jour. Amer. Med. Assoc., 1928, xci., 1675.
214. Mellinghoff, K.: Deut. med. Woch., 1934, lx., 1127.
215. Mellinghoff, K., and Heuschert, C. A.: Klin. Woch., 1934, xiii., 1247.
216. Merritt, H. H., and Bauer, W.: Jour. Biol. Chem., 1931, xc., 215, 233.
217. Meyer, L. F.: Jahrb. f. Kinderheilk., 1907, n.s. lxv., 585.
218. Meyer, P.: Klin. Woch., 1931, x., 155.
219. ,, ,, : Ibid., 1932, xi., 1383.
220. Meyer-Bisch, R., and Bock, D.: Zeits. f. d. ges. exp. Med., 1927, liv., 131, 145.
221. Meyer-Bisch, R., and Gunther, F.: Biochem. Zeits., 1924, clii., 286.
222. Michelsen, J.: Arch. f. exp. Path. u. Pharm., 1933, clxxiii., 737, 746, 750.
223. Mitchell, A. G., and Jonas, L.: Amer. Jour. Med. Sci., 1925, clxix., 236
224. Mond, R., and Netter, H.: Pflügers Arch. f. d. ges. Physiol., 1932, ccxxx., 42.
225. Morawitz, P., and Schloss, J.: Klin. Woch., 1932, xi., 1628.
226. Morgulis, S., and Perley, A. M.: Jour. Biol. Chem., 1930, lxxxviii., 169.
227. Mosher, H. H.: Jour. Biol. Chem., 1933, xcix., 781.
228. Mosonyi, J., and Voith, L.: Arch. f. exp. Path. u. Pharm., 1934–35, clxxvii., 177.
229. Moss, K. N.: Proc. Roy. Soc. B., 1923–24, xcv., 181.
230. Mozer, J. J., and Mach, R. S.: Bull. et mém. Soc. méd. hôp. de Paris, 1934, p. 443.
231. Muntwyler, E., Way, C. T., and Pomerene, E.: Jour. Biol. Chem., 1931, xcii., 733.
232. Neale, A. V., and Esslemont, M. S.: Arch. Dis. Childhood, 1928, iii., 243.
233. Neuhausen, B. S., and Pincus, J. B.: Jour. Biol. Chem., 1923, lvii., 99.
234. Ni, T. G.: Amer. Jour. Physiol., 1926, lxxviii., 158.
235. Nicholas, H. O.: Jour. Biol. Chem., 1932, xcvii., 457.
236. Nicholson, H.: Amer. Jour. Physiol., 1931–32, xcix., 570.
237. Oakley, W.: THE LANCET, 1935, ii., 187.
238. Odin, M.: Svenska Läkaretidningen, 1928, quoted verbatim by Brandberg, q.v.
239. Odin, M.: Acta Med. Scand., 1928, lxix., 254.
240. Orr, T. G., and Haden, R. L.: Jour. Amer. Med. Assoc., 1928, xci., 1529.
241. O'Shaughnessy, W. B.: Lond. Med. Gaz., 1831–32, ix., 486.
242. ,, ,, : Ibid., 1832, x., 20.
243. Palmer, W. W., and Henderson, L. J.: Arch. Internal Med., 1915, xvi., 109.
244. Paraf, J., and Klotz, H. P.: Bull. et mém. Soc. méd. hôp. de Paris, 1933, p. 1398.
245. Parkins, W. M., Taylor, A. R., and Swingle, W. W.: Amer. Jour. Physiol., 1935, cxii., 581.
246. du Pasquier, G.: Rev. méd. de la Suisse Rom., 1927, xlvii., 789–798.
247. Pavanzo, I.: Rass. Obst., 1931, xi., 23; from Ber. ü. d. ges. Gynäk., 1931, xx., 155.
248. Peters, J. P.: Body Water, London, 1935.
249. Peters, J. P., Bulger, H. A., Eisenman, A. J., and Lee, C.: Jour. Clin. Invest., 1925–26, ii., 167.
259. Peters, J. P., Kydd, D. M., and Eisenman, A. J.: Ibid., 1933, xii., 355.
251. Peters, J. P., Kydd, D. M., Eisenman, A. J., and Hald, P. M.: Ibid., 1933, xii., 377.
252. Peters, J. P., and van Slyke, D. D.: Quantitative Clinical Chemistry, London, 1931, i., 755.
253. Same authors: Ibid., p. 793 et seq.
254. Phelizot, G.: Compt. rend. Soc. de biol., 1930, civ., 1310.
255. Pincus, J. B., and Kramer, B.: Jour. Biol. Chem., 1923, lvii., 463.
256. Platou: Norsk. Mag. f. Laegevid., quoted by Brandberg.
257. Poczka, N., and Steigerwaldt, F.: Zeits. f. d. ges. exp. Med., 1935, xcvi., 20.
258. Porges, O.: Klin. Woch., 1932, xi., 186.
259. Rabinowitch, I. M.: Canad. Med. Assoc. Jour., 1921, n.s. xi., 163.
260. Rachmilewitz, M.: THE LANCET, 1934, i., 78.
261. Radot, P. V.: Compt. rend. Soc. de biol., 1914, lxxvi., 760.
262. Ralli, E. P., and Waterhouse, A. M.: Amer. Jour. Med. Sci., 1934, clxxxvii., 607.
263. Rathery, F., and Rudolf, M.: Bull. et mém. Soc. méd. hôp. de Paris, 1928, p. 1363.
264. Ravdin, I. S., Johnston, C. G., Riegel, C., and Wright, S. L.: Amer. Jour. Physiol., 1932, c., 317.
265. Reed, C. I.: Jour. Biol. Chem., 1928, lxxvii., 547.
266. Richon, L., Vigneul, M., and Girard, J.: Compt. rend. Soc. de biol., 1929, c., 747.
267. Rigler, R.: Klin. Woch., 1935, xiv., 227.
268. Robineau, M., and Levy, M.: Presse méd., 1933, xli., 1565.
269. Rogers, L.: Philip Jour. Sci. B. (Med.), 1909, iv., 99.
270. ,, ,, : Therap. Gaz., 1909, xxxiii. (xxv. of ser. 3), 761.
271. Rogoff, I. M., and Stewart, G. N.: Amer. Jour. Physiol., 1926, lxxix., 508.
272. Romalo, E., and Dumitresco: Compt. rend. Soc. de biol., 1914, lxxvi., 676.
273. Rowntree, L. G.: Physiol. Rev., 1922, ii., 116.
274. ,, ,, : Jour. Amer. Med. Assoc., 1925, lxxxiv., 327.
275. Rowntree, L. G., and Snell, A. M.: A Clinical Study of Addison's Disease, Mayo Clinic Monographs, Philadelphia, 1931.
276. Rubin, M. I., and Krick, E. T.: Proc. Soc. Exp. Biol. Med., 1933–34, xxxi., 228.
277. Ryle, J. A.: THE LANCET, 1935, i., 198.
278. Savy, P., and Thiers, H.: Compt. rend. Soc. de biol., 1928, xcix., 516.
279. Schäfer, W.: Zeits. f. d. ges. exp. Med., 1933, xc., 552.
280. Schiff, E.: Monats. f. Kinderheilk., 1919, xv., 593.
281. Schloss, O. M.: Amer. Jour. Dis. Child., 1918, xv., 165.
282. Schloss, O. M., and Stetson, R. E.: Ibid., 1917, xiii., 218.
283. Schnohr, E.: Acta Chir. Scand., 1934, lxxv., supp. 33.
284. Schwaab, A., and Walther, P.: Presse méd., 1933, xli., 874.
285. Searle, O. M., and Michaels, J. J.: Amer. Jour. Physiol., 1932, ciii., 455.
286. Sellards, A. W.: Philip Jour. Sci. B. (Med.), 1910, v., 363.
287. Sellards, A. W., and Shaklee, A. O.: Ibid., 1911, vi., 53.
288. Shannon, J. A.: Amer. Jour. Physiol., 1935, cxiii., 602.
289. Silvette, H.: Amer. Jour. Physiol., 1934, cviii., 535.
290. Silvette, H., and Britton, S. W.: Ibid., 1933, civ., 399.
291. Same authors: Ibid., 1935, cxi., 305.
292. Simpson, S. L.: Proc. Roy. Soc. Med., 1933–34, xxvii., 383.
293. ,, ,, : Quart. Jour. Med., 1932, xxv. (n.s. i.), 99.
294. Simpson, S. L., and Korenchevsky, V.: Jour. Path. and Bact., 1935, xl., 483.
295. van Slyke, D. D., Linder, G. C., Hillier, A., Leiter, L., and McIntosh, J. F.: Jour. Clin. Invest., 1925–26, ii., 255.
296. Smirk, F. H.: Proc. Roy. Soc. Med., 1933–34, xxvii., 1485.
297. Smyth, F. S., Deamer, W. C., and Phatak, N. M.: Jour. Clin. Invest., 1933, xii., 55.
298. Snell, A. M., and Greene, C. H.: Amer. Jour. Physiol., 1930, xcii., 630.
299. Spiegler, A.: Zeits. f. Biol., 1901, n.s. xxiii., 239.
300. Stary, Z., Kral, A., and Winternitz, R.: Zeits. f. d. ges. exp. Med., 1929, lxvi., 671.
301. Same authors: Ibid., 1929, lxviii., 441.
302. Steinitz, H.: Zeits. f. klin. Med., 1928, cvii., 560.
303. Stewart, D.: Arch. Dis. Childhood, 1928, iii., 96.
304. Straus, H.: Klin. Woch., 1931, x., 2354.
305. Sullivan, R. C., McLean, A. B., and Zwerner, R. L.: Amer. Jour. Dis. Child., 1932, xliii., 1279.
306. Sunderman, F. W., Austin, J. H., and Williams, P.: Jour. Clin. Invest., 1932, xi., 1261.
307. Sunderman, F. W., and Williams, E. S.: Ibid., 1935, xiv., 245.
308. Swingle, W. W.: Amer. Jour. Physiol., 1926–27, lxxix., 666.
309. ,, ,, : Ibid., 1928, lxxxvi., 450.
310. Swingle, W. W., Pfiffner, J. J., Vars, H. M., and Parkins, W. M.: Ibid., 1934, cviii., 159.
311. Same authors: Ibid., 1934, cviii., 428.
312. Tabanelli, M.: Biochem. Ter. Sper., 1931, xviii., 448; from Ber. ges. Physiol., 1932, lxvi., 65.
313. Talbert, G. A., and Rosenberg, I.: Amer. Jour. Physiol., 1928, lxxxiv., 520.
314. Talbott, J. H., and Michelsen, J.: Jour. Clin. Invest., 1933, xii., 533.
315. v. Terray, P., Vas, B., and Gara, G.: Berl. klin. Woch., 1893, xxx., 309.
316. Thompson, W. H., and McQuarrie, I.: Proc. Soc. Exp. Biol. Med., 1934, xxxi., 907.
317. Thompson, W. O., Thompson, P. K., Silveus, E., and Dailey, M. E.: Arch. Internal Med., 1929, xliv., 368.
318. de Thurzo, E., and Katzenelbogen, S.: Arch. f. Neurol. u. Psychiat., 1935, xxxiii., 786.
319. Tileston, W., and Comfort, C. W.: Arch. Internal Med., 1914, xiv., 620.
320. Urechia, C. I., Benetato, G., and Retezeanu: Compt. rend. Soc. de biol., 1935, cxix, 439.
321. Verney, E. B.: THE LANCET, 1929, i., 539.
322. ,, ,, : Ibid., 1929, i., 645.
323. Verzar, F.: Jour. Physiol., 1935, lxxxiv., 41 P.
324. Verzar, F., and Laszt, L.: Biochem. Zeits., 1935, cclxxviii., 396.
325. Vignes, H., and Levy, M.: Arch. des mal. de l'app. digestif, 1934, xxiv., 530.
326. Vogt, E.: Arch. f. Gynäk., 1934, clviii., 61.
327. Walker, A. M.: Jour. Biol. Chem., 1933, ci., 269.
328. Walker, A. M., and Reisinger, J. A.: Ibid., 1933, ci., 223.
329. Walters, W., and Bollman, J. L.: Arch. of Surg., 1926, xiii., 578.
330. Walters, W., Kilgore, A. M., and Bollman, J. L.: Jour. Amer. Med. Assoc., 1926, lxxxvi., 186.
331. Wangensteen, O. H., and Chunn, S. S.: Arch. of Surg., 1928, xvi., 1242.
332. Warner, E. C.: THE LANCET, 1930, i., 339.
333. Watchorn, E., and McCance, R. A.: Biochem. Jour., 1932, xxvi., 54.
334. Same authors: Ibid., 1933, xxvii., 1107.
335. ,, ,, : Ibid., 1935, xxix., 2291.
336. Whipple, G. H., and Cooke, J. V.: Jour. Exper. Med., 1917, xxv., 461.
337. Whipple, G. H., Cooke, J. V., and Stearns, T.: Ibid., 1917, xxv., 479.
338. Whipple, G. H., and van Slyke, D. D.: Ibid., 1918, xxviii., 213.
339. White, J. C., and Bridge, E. M.: Boston Med. and Surg. Jour., 1927, cxcvi., 893.
340. Whitehouse, A. G. R.: Proc. Roy. Soc. B., 1935, cxvii., 139.
341. Winter, K. A.: Klin. Woch., 1934, xiii., 1454.
342. Winton, F. R.: Jour. of Physiol., 1931, lxxiii., 151.
343. Wohl, M. G., and Brust, R. W.: Jour. Lab. and Clin. Med., 1934–35, xx., 1170.
344. Yannet, H., Darrow, D. C., and Cary, M. K.: Jour. Biol. Chem., 1935–36, cxii., 477.
345. Yonkman, F. F.: Amer. Jour. Physiol., 1928, lxxxvi., 471.
346. Zwemer, R., and Sullivan, R. C.: Endocrin., 1934, xviii., 97.

MANDELIC ACID AND AMMONIUM MANDELATE

IN THE TREATMENT OF URINARY INFECTIONS

By H. E. Holling, M.B., M.Sc. Sheff., M.R.C.P. Lond.

MEDICAL CLINICAL ASSISTANT, ROYAL INFIRMARY, SHEFFIELD; AND

Robert Platt, M.D. Sheff., F.R.C.P. Lond.

PHYSICIAN TO THE ROYAL INFIRMARY

The episodes leading up to the treatment of urinary infections (pyelonephritis) with mandelic acid can be briefly summarised as follows.

In 1931 Helmholtz and Clark [1] introduced the ketogenic diet as a means of treating these conditions, the rationale being the observed fact that the urines of diabetic patients with ketosis and of epileptic patients undergoing ketogenic treatment were less subject to bacterial decomposition than those of other patients. The treatment was remarkably successful, and Fuller [2] in 1933 showed that its effect was due to the presence of β-hydroxybutyric acid in the urine. The difficult and unpalatable ketogenic diet could not be replaced by oral administration of β-hydroxybutyric acid, however, because that acid is completely oxidised in the body. Rosenheim [3] in 1935 found the necessary substitute in mandelic acid ($C_6H_5.CHOH.COOH$) which is excreted unchanged in the urine and exerts a bacteriostatic effect if the urine is kept sufficiently acid. Clinical trial seemed to give promise of success, and this has since been confirmed by a series of 16 cases of urinary infection reported by Lyon and Dunlop,[4] in all but 3 of which the urine was rendered sterile. The present paper is a report on 29 cases.

METHOD OF TREATMENT

Of the 21 hospital cases treated, 13 were in-patients and the remainder out-patients. There were also 8 private patients, 3 of whom were in bed during the treatment.

Catheter specimens of urine were first examined to determine the nature of the infection, and pyelography (retrograde or intravenous) was performed where necessary, to exclude pyonephrosis, calculus, tuberculosis, &c.

The first few hospital patients were given mandelic acid, neutralised by sodium bicarbonate as described by Rosenheim. Later the sodium salt was prescribed as follows:—

Sodium mandelate	50 grains.
Syrup of orange	1 drachm.
Water to 1 ounce.	

In water fourth mes daily.

This was preceded by:—

Ammonium chloride	30 grains.
Liquid extract of liquorice ..	15 minims.
Water to 1 ounce.	

Four times daily.

Fluid intake was restricted during treatment to two pints daily, unless thirst was complained of, when more fluid was allowed.

The acidity of the urine, which must attain a pH of 5·3 or less, was tested by the addition of five drops of methyl-red solution to 2 c.cm. of urine. This gives a bright pink colour if the urinary acidity is satisfactory, but an orange or yellow colour if it is too alkaline. The amount of ammonium chloride administered was then increased or reduced accordingly. As a rule, a satisfactory acidity can be produced with about half the dose prescribed above. In private patients the ammonium chloride was given in 1·0 gramme capsules (4–8 daily).

Finally, 4 cases were treated by ammonium mandelate (see later).

Specimens of urine were examined at two-day intervals where possible. When the deposit (examined as a wet film) showed only a few leucocytes and no bacilli, cultures were again made from catheter specimens.

COMMENT

The results of treatment are set out in the accompanying Table, and it will be seen that in every uncomplicated case of acute or chronic pyelonephritis (abbreviated to "pyelitis") the urine was rendered sterile by mandelic acid treatment in from 2 to 21 days. The failures (5 out of 29) may be considered in further detail.

Case 4, a man of 53, had prostatic calculi, though no enlargement of the prostate could be made out. He felt better when taking mandelic acid.

Case 9 had tuberculosis of the kidney and bladder, with a secondary infection with bacillus coli. Mandelic acid and ammonium chloride made the symptoms worse and she only took the treatment intermittently.

Case 11 was a woman very ill with pernicious anæmia, degeneration of the cord, uterine prolapse, and a severe urinary infection. She died during treatment, apparently from general weakness.

Case 12 was a young woman who had had the right kidney removed three years previously for a growth (adenomyoma) involving the ureter. She had had a severe pyelonephritis of the other kidney ever since, which ketogenic diet failed to clear up. Early in 1935 an attempt was made to catheterise the left ureter but was unsuccessful owing to the very severe cystitis. Her condition in November, 1935, was so miserable with frequency and dysuria that although renal insufficiency was suspected it was thought that mandelic acid might be tried as a last resort. She refused to come into hospital or to have any further investigation before treatment. The ammonium chloride caused extremely severe dyspnœa which was no doubt due to acidosis. A satisfactory urinary acidity could not be produced; treatment was stopped after three days.

Case 16 had *B. coli* septicæmia. Post-mortem examination showed pyonephrosis and perinephritic abscess.

It will thus be seen that with the exception of Case 4, and possibly Case 11, none of the failures were really suitable for mandelic acid treatment.

During treatment a few casts and a trace of albumin occasionally occur in the urine. The treatment is obviously unsuitable in the presence of renal insufficiency because badly damaged kidneys cannot excrete a sufficiently acid urine or a sufficient concentration of mandelic acid. Nevertheless the presence of nephritis in an earlier stage does not appear to be a contra-indication, as is shown by the two cases (Nos. 3 and 27) in which renal œdema was present. The superimposed urinary infection was cleared up in each without any apparent change in the course of the nephritis. In Case 1 (hypertension without renal insufficiency) the course of the disease also was unaffected, except favourably by the removal of the symptoms of urinary infection.

Of the other cases, Nos. 13 and 17 relapsed. The former was again successfully treated. Case 18 had previously had scarlatinal nephritis; intravenous pyelography showed slight stenosis of the right ureter and a ureteric catheter was therefore passed and kept in position for three days during mandelic acid treatment. Case 20 had had mandelic acid treatment at home once before and relapsed; she

SUMMARY OF CASES

No.	Sex and age.	Organism.	Diagnosis.	Duration of infection.	Days till urine sterile.	Remarks.
1	F. 48	*B. coli.*	C. pyelitis.	2 years.	7 days.	Hypertension. Granular and hyaline casts.
2	F. 30	,,	,,	1½ ,,	6 ,,	Could not take ketogenic diet.
3	F. 26	,,	Pyelitis and nephritis.	5 weeks.	10 ,,	Subacute nephritis not affected by mandelic acid.
4	M. 53	,,	C. pyelitis.	1 year.	Not sterile.	? Prostatic calculi but no prostatic enlargement. Feels better on mandelic acid.
5	F. 49	,,	,,	?	3 weeks.	—
6	F. 34	,,	,,	2 years.	7 days.	—
7	M. 28	,,	A. pyelitis.	—	14 ,,	Urine showed few hyaline and granular casts.
8	F. 5	,,	C. pyelitis.	6 months.	4 ,,	Relapse after successful ketogenic diet.
9	F. 30	*B. coli* T.B.	T.B. kidney and bladder.	6 ,,	Not sterile.	No effect on secondary infection; refuses to take ammonium chloride.
10	M. 52	*B. coli.*	A. pyelitis.	4 days.	4 days.	—
11	F. 59	*B. coli* staph. *B. proteus.*	Pyelitis and cystitis.	6 weeks.	Not sterile.	Had subacute combined degeneration.
12	F. 30	*B. coli.*	C. pyelitis.	3 years.	,,	Renal insufficiency.
13	F. 50	,,	A. pyelitis.	1 month.	5 days.	Relapse and cure in 10 days.
14	F. 25	,,	,,	1 week.	10 ,,	—
15	F. 35	,,	C. pyelitis.	Many years.	7 ,,	Mandelic acid made her sick and she refused it. Urine sterile but symptoms not improved.
16	M. 50	,,	Pyonephrosis and perinephric abscess.	?	Not sterile.	Died of *B. coli* septicæmia.
17	M. 64	,,	C. pyelitis.	3 months.	10 days.	Cure, later relapsed.
18	F. 14	,,	,,	1 year.	3 ,,	Kidney drained with catheter.
19	F. 45	,,	A. pyelitis.	24 days.	2 ,,	—
20	F. 30	,,	C. pyelitis.	9 months.	14 ,,	Previous attack cured in 14 days by mandelic acid.
21	F. 31	,,	,,	6 ,,	12 ,,	—
22	F. 21	,,	,,	5 weeks.	14 ,,	Followed pregnancy.
23	F. 27	,,	Pyelitis of pregnancy.	3 ,,	21 ,,	—
24	F. 37	,,	C. pyelitis.	10 ,,	14 ,,	—
25	F. 21	,,	A. pyelitis.	4 ,,	10 ,,	—
*26	M. 66	,,	C. pyelitis.	11 years.	5 ,,	—
*27	F. 6	,,	Pyelitis and nephritis.	?	5 ,,	Acute nephritis, improved during treatment.
*28	F. 53	,,	C. pyelitis.	Many years.	4 ,,	—
*29	F. 35	,,	,,	Few years.	7 ,,	Ammonium chloride and ammonium mandelate.

* Treated with ammonium mandelate. C. = chronic; A. = acute.

had a history of having had "cystitis" at the age of 13 years. In Cases 7, 13, 19, 22, 23, and 25 a recent acute pyelonephritis had been controlled by alkaline treatment, but a heavy infection still remained. Cases 10 and 14 were treated with mandelic acid in the acute stage.

AMMONIUM MANDELATE

The only disadvantage of mandelic acid treatment as so far practised is the necessity of giving two somewhat unpleasant medicaments, one followed closely by the other, four times in the day. The ammonium chloride is particularly nauseous to some patients and may actually cause vomiting, and even when it is given in capsule form there may be an unpleasant after-taste.

Mandelic acid has to be given as a salt because the acid itself is a gastric irritant. The ammonium chloride is given to acidify the urine so that a proportion of the mandelate administered is excreted as mandelic acid.

To obviate these disadvantages if possible, the British Drug Houses Ltd. have prepared the ammonium salt of mandelic acid, and we are indebted to them for placing stocks at our disposal for clinical trial. They state that ammonium mandelate, being hygroscopic, cannot be supplied in tablet form and they have therefore made it up as an elixir, 1 oz. of which contains 34 grains of the salt, equivalent to 30 grains (2 grammes) of mandelic acid.

Salts such as ammonium chloride act as acids in the body owing to the ammonium radicle being converted into urea, and leaving the acid radicle to be excreted. Ammonium mandelate should be weaker in its action than ammonium chloride, but on the other hand the use of ammonium mandelate dispenses with the necessity of giving the sodium salt, and so saves the addition of an unnecessary alkali. Based on molecular weights, 3·0 grammes of sodium mandelate plus 1·0 gramme of ammonium chloride (approximately the usual doses) should be roughly equivalent to the effect of 3·0 g. of ammonium mandelate administered by itself.

It seems likely that, provided the urine can be sufficiently acidified by ammonium mandelate alone, the bacteriostatic effect of the mandelic acid radicle will be as good as when the sodium salt is used. We therefore tried the acidifying effect of the elixir of ammonium mandelate on ourselves (it is not particularly unpleasant to take) and found that doses of 34 grains of ammonium mandelate four times daily produced a satisfactory urinary acidity (pH 5·3)

within an hour or two, but this degree of acidity was not invariably maintained throughout the day. As we are both of about average weight (10 st. 2 lb. and 10 st. 9 lb.) we concluded that somewhat larger doses should generally be given for the treatment of patients.

Four patients were treated with ammonium mandelate, and in all four a sterile urine was effected in a week or less, though all had a chronic infection. Case 26, a man of 13 st., required doses of 51 grains four times daily (1½ oz. of the elixir). Case 27, a child of 6 (weight 3 st. 7 lb.) with acute nephritis as well as *B. coli* infection, was given 17 grains four times daily. Case 28 had 34-grain doses. In Case 29 the urine was alkaline to litmus before treatment, and 51-grain doses supplemented by 30 grains of ammonium chloride were necessary to produce a satisfactory acidity and cure the infection.

In the light of this short experience, together with what is already known of mandelic acid treatment, we feel justified in saying that ammonium mandelate, suitably prepared, is a convenient means of administering mandelic acid, and that in the majority of cases the use of ammonium chloride can thereby be obviated. The suitable dose of ammonium mandelate is probably the same as that of the sodium salt—namely, about 50 grains four times in the day, the equivalent of about 3 grammes of mandelic acid.

TREATMENT OF PYELONEPHRITIS IN GENERAL

The disease "pyelitis" affecting, as it does, the parenchyma of the kidney as well as the renal pelvis, ureter, and bladder, is better known as pyelonephritis. The term cystitis may be restricted to the occasional infection of the bladder only, by catheter or otherwise, before an ascending spread has taken place.

Acute pyelonephritis is often associated with high temperature, rigors, and general symptoms of which severe headache is one of the most frequent. For such severe cases, alkalis if given in sufficient doses are so efficient in bringing down the temperature and controlling the distressing symptoms that we have not used mandelic acid therapy, fearing to cause a temporary exacerbation of symptoms or to induce vomiting. It should be noted that it is often necessary to give as much as 30 grains of potassium citrate and 30 grains of sodium bicarbonate every two hours in order to produce the effect. We have recently seen two patients in whom the pyrexia remained *despite an alkaline urine*, until the dosage was pushed to this extent.

When the acute stage has been controlled, a few cases rapidly clear up spontaneously, especially in women after delivery. In many more, however, pus cells and bacilli remain in the urine, and a chronic pyelonephritis develops. Often there are acute exacerbations and for years the patient suffers from poor health and has intermittent attacks of frequency, dysuria, pyrexia, or urticaria. A few eventually develop renal failure.

As nearly all these chronic infections are now avoidable, we would like to stress the importance of not discharging any case of pyelonephritis, especially when acute, until it is known that the urine is sterile. If, after an acute attack has settled down, bacilli are still present, mandelic acid therapy should be employed at once, before waiting for chronic changes to develop.

For those who show a marked tendency to recurrence we are trying the effect of giving two consecutive days of mandelic acid treatment in each month. Between these brief courses, fluid intake should be liberal, and both constipation and the over-use of aperients should be avoided as far as possible.

SUMMARY

Of 29 cases of urinary infection treated with mandelic acid 24 showed sterile urine within 2–21 days. Of the successful cases 2 had also a concurrent nephritis in an active stage, which was not adversely affected by the treatment. Of the 5 failures at least 3 were unsuitable cases in which cure was not to be anticipated.

Ammonium mandelate was found to be as effective as the sodium salt, and when it was used it was usually unnecessary to give the unpleasant ammonium chloride.

The proper use of these remedies will prevent chronic pyelonephritis.

REFERENCES

1. Helmholtz, H. F., and Clark, A. L.: Proc. Staff Meet. Mayo Clin., 1931, vi., 605 and 609.
2. Fuller, A. T.: THE LANCET, 1933, i., 855.
3. Rosenheim, M. L.: Ibid., 1935, i., 1032.
4. Lyon, D. M., and Dunlop, D. M.: Brit. Med. Jour., 1935, ii., 1096.

X RAY APPEARANCES OF THE LUNGS OF ELECTRIC ARC WELDERS

BY A. T. DOIG, M.B. St. And., D.P.H.

MEDICAL SUPERINTENDENT, OAKWOOD HALL SANATORIUM, ROTHERHAM; AND

A. I. G. MCLAUGHLIN, M.B. Sydney, M.R.C.P. Lond.

H.M. MEDICAL INSPECTOR OF FACTORIES, HOME OFFICE

(WITH ILLUSTRATIONS ON PLATE)

ATTENTION has been directed recently to the acute pulmonary conditions which may occur in welders as a result of their occupation. Adler-Herzmark [1] in 1929 described the illness and death of an electric arc welder from pulmonary œdema which he attributed to nitrous fumes. In 1934 Bridge [2a] recorded a number of cases of acute poisoning by nitrous fumes occurring in oxy-acetylene welders who were working in a confined space in a ship. Williman's recent case [3] of acute fatal pneumonia in an electric arc welder was that of a man who had been welding galvanised iron in a confined space; and Titus, Warren, and Drinker [4] have shown after a series of animal experiments that the pulmonary œdema associated with welding (not necessarily of galvanised metal) in confined spaces is caused by the gases (nitrogen peroxide and ozone) generated at the electric arc and not by the fine particles of iron oxide found in the fume. The symptoms associated with the welding of galvanised metal appear to be comparable with those of metal fume fever and were described by Bridge [2b] in 1921, by Koelsch in 1923,[5] and also by Drinker [6] and his co-workers in 1927. Similar symptoms in welders working on galvanised metal have been noted by Dickson [7] and by Anderson.[8] Metal fume fever is a transient malady and is characterised mainly by malaise, pyrexia, and shivering attacks.

Some of the occupational risks in welding—e.g., metal fume fever and poisoning by nitrous fumes—are common to both electric arc and oxy-acetylene welding, but each method has its proper risks. Wirtschafter and Schwartz [9] state that the oxy-acetylene welder is exposed, under various working conditions, to poisoning by the products of incomplete combustion of the oxy-acetylene flame, especially

carbon monoxide and acetylene, and also by impurities in commercial acetylene. Westhofen,[10] who made a statistical study of the health of 146 electric arc welders, shows that a large number of them suffer from colds and inflammatory conditions of the upper respiratory tracts, a fact which he believes can be explained by the irritating properties of the metal fume and by the sudden changes of temperature to which welders are exposed.

Chronic pulmonary lesions directly associated with the occupation have not been recorded up to the present time as occurring in electric arc welders. This fact is not surprising because the process is a comparatively new one and it is only during the last ten years that it has been widely adopted. It may be noted also that covered electrodes have only been used for about ten years. We present in this paper the results of a clinical and radiological examination of the chests of 16 electric arc welders. They are apparently healthy men and are actively engaged at their occupation. Nearly all of them are young men who were apprenticed to electric welding at 14 years of age and who have worked at no other trade. The X ray films of 6 of them show a generalised fine mottling over both lung fields; the remaining films show less marked changes, but none could be considered to be a picture of a completely normal chest. The conditions which have to be considered in the differential diagnosis include miliary tuberculosis, asbestosis, silicosis, and other pulmonary conditions caused by dust or fumes. The X ray film in the first case, in view of the family history, was for some time thought to be an example of miliary tuberculosis. In the present early stage of the investigation we are not prepared to be dogmatic about the interpretation of the radiographic and clinical findings, especially because no opportunity for histological examination of the lungs has arisen. In this paper we merely wish to record the results of our examinations as far as they have gone and to discuss in a general way the possible factors in the ætiology.

THE FIRST TWO CASES

CASE 1.—Aged 44. This man was seen by one of us (A. T. D.) at the Rotherham Tuberculosis Dispensary on June 28th, 1933, because his sputum had been stained slightly with blood for a few days. He felt well except for slight debility which had followed an attack of influenza six months previously.

Family History.—His father and grandfather, both of whom had been tin miners in Cornwall, had died from silicosis.

Occupational History.—He left school at 14 years of age and for 1 year stoked boilers in a clay mine (above ground). For 18 years (until 1925) he worked as a blacksmith, but during this time he had done occasional electric welding jobs. He has been an electric arc welder for 11 years.

X Ray and Other Examinations.—On June 28th, 1933, an X ray film showed fine mottling * evenly distributed over both lung fields. The sputum was examined on July 4th, 1935, for tubercle bacilli and for asbestos bodies, with negative results. The glass shield used by the man to protect his eyes during electric welding was examined on Sept. 29th, 1933, at the Government laboratory. The report stated that "the fume deposited on the glass consists essentially of magnetic iron oxide (Fe_3O_4). Slight evidence of the presence of silica was obtained but this was probably derived from the glass slide, the surface of which was damaged by red-hot particles thrown off from the electrodes." Further X ray films were taken of his chest on Dec. 26th, 1933, and also on Sept. 3rd, 1934 (Fig. I. on Plate). The appearances differed in no essential point from those of the original film. It was thought however that the punctate shadows seen in the later film were slightly larger, especially in the fifth right costal space close to the hilum.

The patient has not lost any time from work and when seen recently was found to be in fairly good health. Since 1933 he has been wearing a mask over his nose and mouth during actual work at electric welding. Physical examination revealed few abnormal signs with the exception that the breath sounds were harsh over the apices and bases of the lungs, and that a few post-tussic crepitations could be heard at both bases. The movement of the chest was equal on both sides but the degree of expansion was somewhat limited.

CASE 2.—Aged 35. This man was asked to attend for X ray examination because of the nature of his work. His occupational history shows that after leaving school he worked in an office for 6 years; for another 3 years he was engaged in a steel works as a cold steel roller, and for the 11 years he has been working continuously as an electric arc welder. For the last year he has been working as storekeeper because he thought the fume from welding was affecting his health. There is no family history of tuberculosis. He has a slight cough and occasional morning sputum, but otherwise is in good health. He was first radiographed in September, 1934, the film (Fig. II. on Plate) showing features similar to those of Case 1. The lung fields generally show a fine mottling, the individual shadows being irregular in size and having soft outlines. The mottling is distributed fairly uniformly, although the upper two-thirds of each lung field are rather more affected than the lower thirds. Both lungs are equally affected. A recent radiogram of the chest (Jan. 6th, 1936), taken a year after he had given up electric welding, shows that the mottling noted in the first film is still present but less marked. In some of the larger nodules a minute central core is visible. Clinical examination of the chest shows that the expansion is equal on both sides but is rather less than normal. The percussion note is not impaired, and the breath sounds are harsh with prolongation of expiration over both lower zones, especially in the mid-axillary lines. Post-tussic crepitations are heard at both bases. Examination of the sputum (March 12th, 1936) shows that it contains large numbers of macrophages or dust cells which are packed with fine granules of iron oxide. No asbestos bodies are seen.

On account of the findings in the first 2 cases, 14 more welders were asked to attend for examination. Brief notes of the history and of the results of the X ray examinations of the chest are given. In a few cases the results of clinical examination of the chest have been added.

FOUR "POSITIVE" CASES

Four showed X ray appearances comparable with those seen in the first 2 cases, and are therefore classed as *positive*.

CASE 3.—Aged 25. Electric arc welder for 9 years. No other occupation. No family history of tuberculosis. Has a slight cough with copious black sputum, especially after welding inside tanks. Movement diminished over the left upper part of the chest. No impairment of percussion note. Breath sounds harsh over left upper region and also at both bases posteriorly. Crepitations were heard at both bases in the axillary lines but more clearly on the left side. *Radiography* (Jan. 6th, 1936). Skeleton, heart, and diaphragm normal. Shadow of lung roots not enlarged. Prominent (? calcified) opacity in the upper pole of left root. Fine bronchial ramifications slightly accentuated generally. Fine stippling throughout both lung fields, the nodules being irregular in size and shape. The stippling is slightly more marked in the upper half of the right lung.

CASE 4.—Aged 23. Electric welder for 7 years. Health good and no family history of tuberculosis. Slight cough with morning sputum. *Radiography* (Jan. 8th, 1936). Skeleton, heart, and diaphragm normal. The shadow of the right hilum is definitely enlarged. The

* We have used the word "nodule" as a convenient term to describe the individual shadows without reference to their size. "Stippling" is used to indicate the very fine "nodulation" seen in several cases, whereas "mottling" is used to describe a coarser type of "nodulation."

bronchial markings are not increased. Over both lung fields there is generalised stippling. The nodules are irregular in size and shape and consist of single and aggregated units. Their outlines are soft but some of the larger ones have a hard central core.

CASE 5.—Aged 26. Electric arc welder for 9 years. Had an attack of acute bronchitis 5½ years ago, since when has had a persistent cough with black sputum. *Radiography* (Jan. 8th, 1936). Skeleton, heart, and diaphragm normal. Bronchial markings prominent. Right lung clear. Over the upper half of the left lung fine stippling is seen. Both hilar regions normal.

CASE 6.—Aged 28. Electric arc welder for 12 years. Health good. No symptoms apart from slight cough and sputum. Examination of the chest shows that the expansion is good and equal. Percussion note good. Breath sounds well transmitted with a slight prolongation of the respiratory murmur. No adventitious sounds. Heart sounds normal. *Radiography* (Jan. 15th, 1936). Skeleton, heart, and diaphragm normal. Right interlobar septum visible. Generalised fine stippling throughout both lung fields, the shadows being irregular in size and having soft margins.

THREE "SUSPICIOUS" CASES

Three more cases showed X ray changes which were not so definite as those presented by the first 6 cases. We have classified them as *suspicious*.

CASE 7.—Aged 26. Electric arc welder for 9 years. No other occupation. No family history of tuberculosis. Has had a cough with morning sputum on and off for 10 years. The cough is worse after he has done a welding job in an enclosed space, and the sputum then becomes black. Finds that he gets very tired, especially on night shifts. *Radiography* (Jan. 6th, 1936). Skeleton, heart, and diaphragm normal. The bronchial shadows are accentuated generally in both lung fields. There is fine stippling distributed over the left upper zone, especially in the area immediately surrounding the upper pole of the left root.

CASE 8.—Aged 25. Electric arc welding for 11 years. No family history of tuberculosis. Has only a slight cough which is worse after working in an enclosed space, and brings up a certain amount of black sputum mainly in the mornings. Examination of the chest revealed no abnormal physical signs. *Radiography* (Jan. 6th, 1936). Skeleton and heart normal. Right dome of diaphragm slightly blurred. Slight enlargement of the hila, especially on the left side. There is only a slight increase in the bronchial trunk shadows, but the fine bronchial ramifications, especially in the mid-zones, present a honeycombed appearance. A few faint soft and fairly coarse nodules are present in both lung fields. These are mainly situated peripherally and give a coarse mottled effect. The mottling in this case is not nearly so well marked, nor the nodules so fine as in the definitely positive cases.

CASE 9.—Aged 22. Electric arc welder for 8 years. Health good, and only has a cough after doing welding inside a tank. *Radiography* (Jan. 8th, 1936). Skeleton, heart, and diaphragm normal. Bronchial shadowing is prominent in the right upper lobe, and some calcified nodules are present in the right hilum and upper perihilar area. Fine bronchial ramifications are increased generally, and both lung fields have a slightly stippled appearance, the nodules being poorly defined and well spaced. Actual nodulation is however present.

"RADIOGRAPHICALLY NEGATIVE" CASES

The remaining 7 cases have been classified as negative from a radiological point of view. It will be seen however that a number of the films showed increased bronchial striation or fine honeycombing as opposed to definite mottling, and could not strictly be called normal X ray films of the chest.

CASE 10.—Aged 41. Oxy-acetylene welder for 3 years during his apprenticeship, and electric arc welder for 17 years. No family history of tuberculosis. Had a slight attack of influenza 2 years ago which kept him away from work for a week. Has a slight cough with morning sputum. *Radiography* (July 13th, 1934). Heart rather bulbous and slightly enlarged to the right. The right dome of the diaphragm is elevated, and the right costophrenic angle obliterated. The shadow of the left hilum is enlarged. The bronchial trunks in both lungs are markedly accentuated. Close examination reveals a suggestion of fine stippling in the upper lung fields, but this feature is not definite.

CASE 11.—Aged 23. Electric arc welder for 9 years. Health good and no family history of tuberculosis. Has no symptoms. *Radiography* (Jan. 8th, 1936). Skeleton, heart, and diaphragm normal. Right interlobar septum very faintly seen. Fine bronchial ramifications show a slight honeycombing but no definite nodulation. An appearance of nodulation is present, especially in the third and fourth right intercostal spaces as a result of the crossings of the fine bronchial ramifications.

CASE 12.—Aged 25. Has been an electric arc welder for 10 years. He attended the dispensary because his wife was suffering from open pulmonary tuberculosis. Has no cough or sputum. *Radiography* (March 18th, 1935). Skeleton, heart (small), and diaphragm normal. Bronchial shadows not definitely increased in the lower zones. A slight degree of stippling is present in the second right intercostal space and also in the second and third left intercostal spaces.

CASE 13.—Aged 23. Electric arc welder for 8½ years. No other occupation. No family history of tuberculosis. Has no cough as a rule, but brings up black sputum after doing electric welding inside tanks or boilers. *Radiography* (Dec. 23rd, 1935). Skeleton, heart, and diaphragm normal. Bronchial markings generally intensified. No definite stippling present. In certain areas—e.g., the fifth right and fifth left intercostal spaces—the lung parenchyma shows a fine "honeycombing."

CASE 14.—Aged 31. Electric arc welder for 3½ years. Health good. No symptoms. No family history of pulmonary tuberculosis. Examination of the chest shows no abnormal signs. *Radiography* (Jan. 15th, 1936). Skeleton normal. Left auricular region of the heart shadow appears to be enlarged. Increased bronchial striation but no parenchymatous mottling.

CASE 15.—Aged 27. Electric arc welder for 11 years. Health good. Slight cough and sputum. Examination of the chest reveals no abnormal physical signs. *Radiography* (Jan. 15th, 1936). Skeleton, heart, and diaphragm normal. Slight increase of bronchial markings but no parenchymatous stippling.

CASE 16.—Aged 32. Electric arc welder for 9 years. Health good. Slight cough and sputum. Clinical examination showed no abnormal physical signs. *Radiography* (Jan. 15th, 1936). Skeleton, heart, and diaphragm normal. Definite increase of bronchial striation with very slight fine honeycombing but no definite stippling of the lung parencyhma.

DISCUSSION

The diagnosis of the underlying pulmonary lesions which have given rise to these striking X ray changes is a matter which is both interesting, and in the absence of histological examination of the lung tissue, highly speculative. Little doubt exists, however, that the lung changes have been brought about in these men by the dust or fume which they have inhaled while working as welders. During welding operations dense white or greyish-white fume rises up continuously from the spot which is being welded. The welder is obliged to bend closely over his work because he holds in front of his face a coloured glass screen which protects his eyes from the strong light but impedes his vision. If no protective measures are adopted, the welder cannot fail to inhale large quantities of fume during the time he is actually working.

The electrodes or welding rods which contain a core of metal and an outer covering are consumed

gradually by the heat generated (about 1500° C.) during the welding operation. The metal in the core of the rod becomes molten and, assisted by the flux contained in the covering, spreads over the surface of the metal which is being welded. The fume is therefore made up of the volatilised constituents of the coverings of the rods together with fine particles of oxidised metal, usually in the form of iron oxides. In addition the fumes probably contain gases such as nitrogen peroxide and ozone which are formed by the action of an electric spark on the air. The composition of the coverings of the electrodes or welding rods becomes, in the circumstances, a matter of some importance. Many substances, all of which we do not propose to enumerate, are used. The basis of the majority of the coverings is sodium silicate which acts as a flux. Again, the coverings of a certain type of electrode contain asbestos. The rods are sometimes dipped in a mixture containing powdered asbestos and sodium silicate, or asbestos yarn is wound round the rod and fixed by sodium silicate. In some cases the asbestos completely covers the rods, and in others it is merely a cord which is wound spirally about the rod.

The composition of the fumes arising from electric welding electrodes has not yet been fully investigated. Mr. L. C. McNair, H.M. Engineering Inspector of Factories, has however had partial analysis made of the fumes evolved from an asbestos-covered electrode and some asbestos fibres were found. When the particulate matter of the fumes was collected in an Owen's dust-counter, it was seen that a large proportion consisted of iron oxide particles, with an occasional asbestos fibre.

The X ray appearances in the well-marked cases differ from the usual picture of asbestosis. In none of the positive cases and in only one of the suspicious cases was there any blurring of the diaphragmatic shadow, and in no case was the heart outline blurred. The line of the interlobar septum (a feature present in a number of films of cases of asbestosis) is seen in only one positive case. The opacities in the films are not accentuated at the bases of the lungs, but on the contrary the upper lung fields appear to be the earliest, and in established cases, most markedly affected. Before asbestosis can be eliminated from the differential diagnosis it must be remembered that the asbestos fibres are being subjected to intense heat and are not in the same physical state as the fibres which are inhaled by workers in an asbestos factory. It is possible that an atypical picture of asbestosis might be produced by the inhalation of altered asbestos. Merewether [11] says that—

> "the radiographic appearances of the developed or advanced stages of asbestosis are distinctive, although they are not specific. While, as is the case with silicosis, certain radiographic appearances may be looked upon as typical of the disease, frequently modifications of and departure from the typical picture occur." †

The X ray appearances in our cases most closely resemble those of a fine silicosis, but the clinical features show two important differences. In the first place, the electric welders whom we examined are all in good health and are fit to work. The only symptoms observed were slight cough and morning expectoration, and in the first case a small hæmoptysis occurred. This man has not been away from work even for a day since he was first seen in June, 1933, and his health at the present time is good. None of the men suffers from dyspnœa. Secondly none of them has concomitant pulmonary tuberculosis.

Miliary tuberculosis can be ruled out of the differential diagnosis for clinical reasons, and to some extent on the radiological appearances. None of the cases shows the dyspnœa, cyanosis, and tachycardia of acute or subacute miliary tuberculosis. Chronic or healed miliary tuberculosis is rare and it is difficult to imagine that a condition of such rarity would be found in 6 out of one group of 16 men. In the X ray films of the welders' chests (see Plate) the fine opacities are irregular in size and shape, whereas in miliary tuberculosis of the lung the shadows are more uniform.

A further possible explanation of the X ray appearances in this series of cases is that the inhalation of small quantities of nitrous fumes together with the superadded effect of fine iron oxide dust might set up small areas of chronic inflammatory change, congestion, or fibrosis in the lungs. Again, the iron oxide particles might be opaque to the X rays and produce the picture without the associated presence of fibrosis and congestion.

† We have submitted our films to Dr. Merewether and he is of the opinion that "while some of the films give a general impression of asbestosis, further examination reveals so many points of difference in detail from the currently accepted radiographic appearance of asbestosis, as to negative such a diagnosis."

DESCRIPTIONS OF ILLUSTRATIONS ON COLOURED PLATE

DR. MANSON-BAHR

A.—ACUTE BACILLARY DYSENTERY. Shiga's bacillus isolated. General œdema of mucosa, spasm, submucous hæmorrhages. Early healing stage.

B.—CHRONIC BACILLARY DYSENTERY. Flexner-Y infection. Agglutination test positive to Flexner 1 : 180. Great improvement on intestinal lavage.

C.—AMŒBIC ULCERATION of lower rectum giving rise to symptoms suggestive of carcinoma.

D.—AMŒBIC DYSENTERY. Chronic stage, showing "pitting" of mucous membrane.

E.—ACUTE AMŒBIC DYSENTERY. Active ulceration of mucosa with blood and mucus exudate.

F.—INTESTINAL BILHARZIASIS. Early stage. Patches of granulation tissue containing eggs of *Bilharzia mansoni*.

G.—MUCOUS COLITIS. Showing the pale colour of the mucosa and the masses of adherent mucus.

H.—ACUTE ULCERATIVE COLITIS. First stage. Usually called hæmorrhagic colitis.

I.—ACUTE ULCERATIVE COLITIS. Showing plum-coloured, easily traumatised, mucosa in the second stage.

J.—ACUTE ULCERATIVE COLITIS. Early stage, showing granular mucosa, with purulent exudate covering the surface. Note the lack of normal folding of the mucosa.

K.—ULCERATIVE COLITIS. Superficial ulceration in the third, or ulcerative stage.

L.—TUBERCULOUS ULCERATION OF RECTUM. Case in which tubercle bacilli were found in material obtained through the sigmoidoscope. The patient was suffering from chronic diarrhœa with blood and mucus in the stools.

SUMMARY

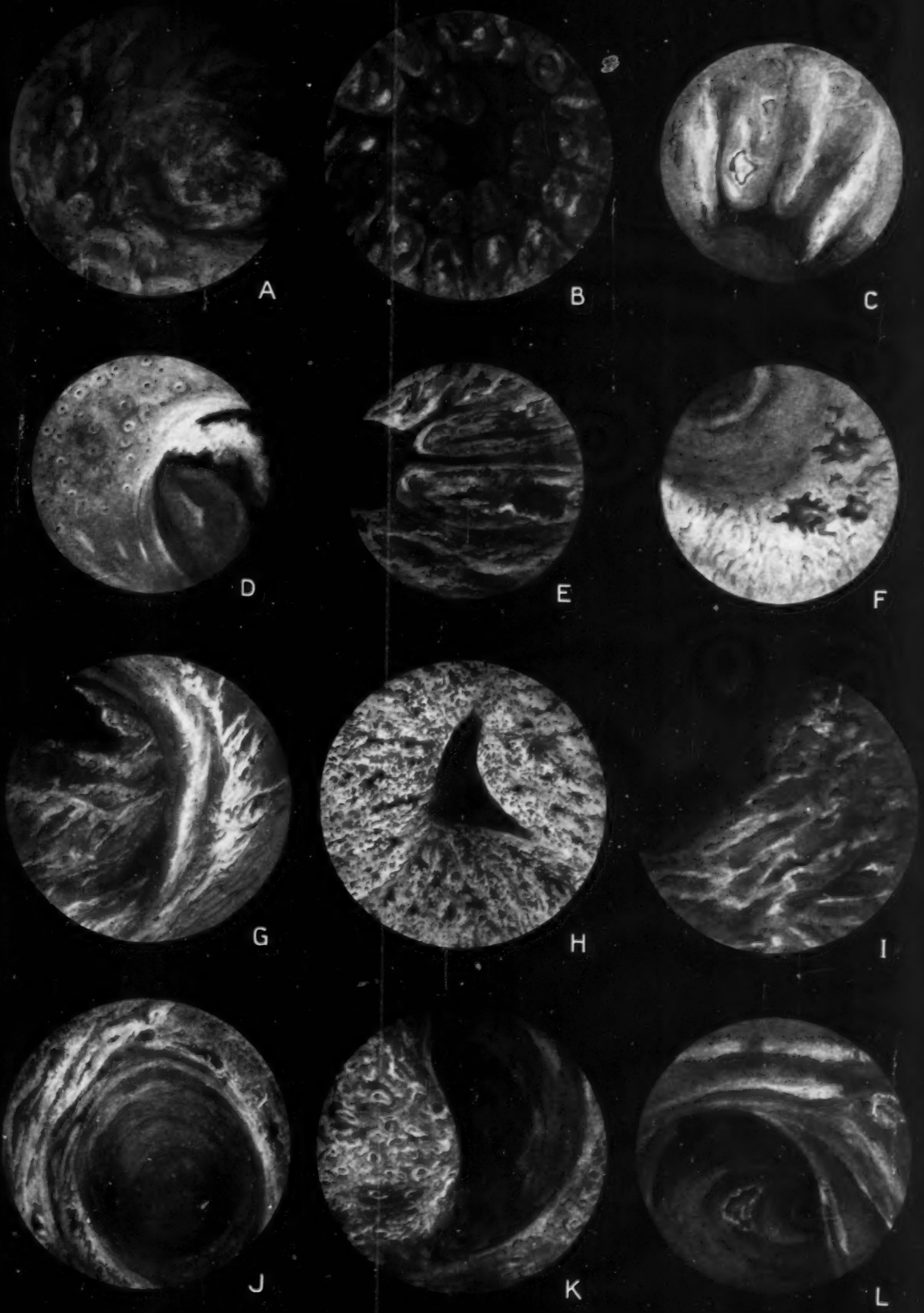
1. The chests of 16 electric arc welders who have been engaged at the trade for periods varying from 6–16 years have been examined radiologically.

2. In 6 cases the X ray films showed fine nodulation over both lung fields; in 3 cases stippling was present over a more limited area; the remaining cases showed varying degrees of accentuation of the bronchial shadows, but no stippling. In no case was a completely normal radiogram obtained.

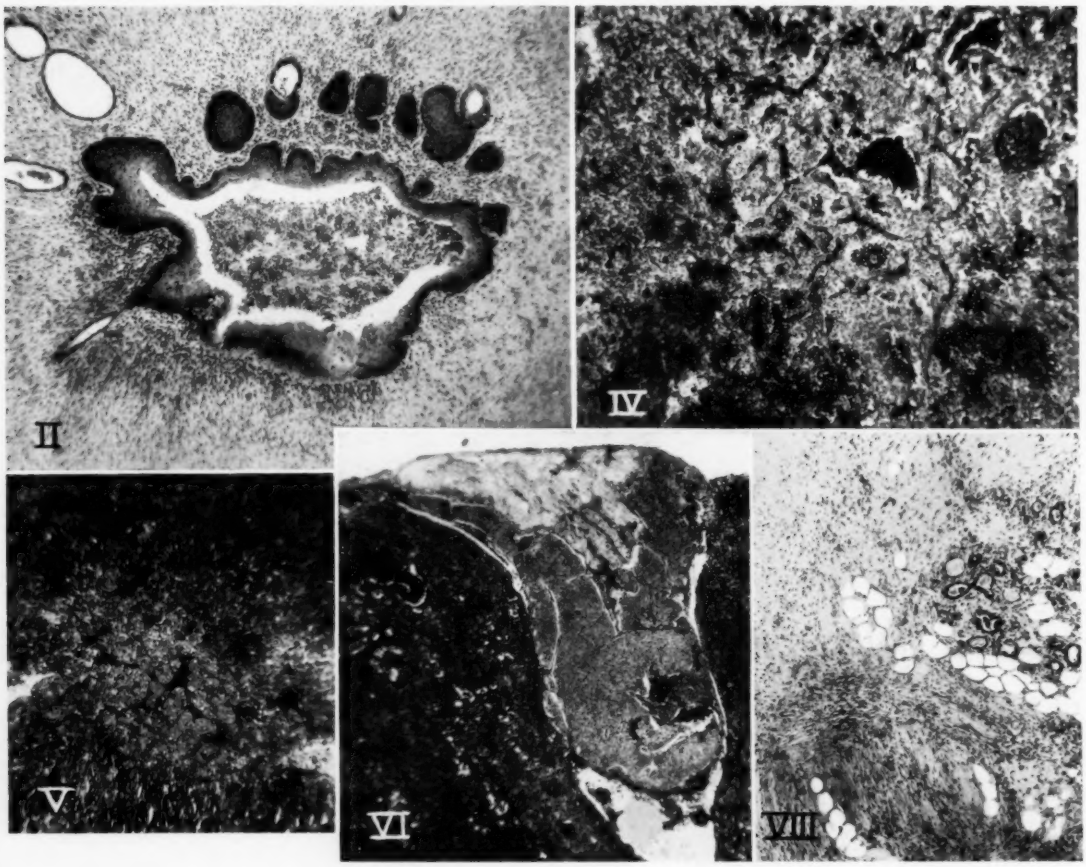
3. Clinical examination of the chests revealed few abnormal signs.

4. The alterations in the pulmonary or bronchial tissues underlying these X ray changes have been

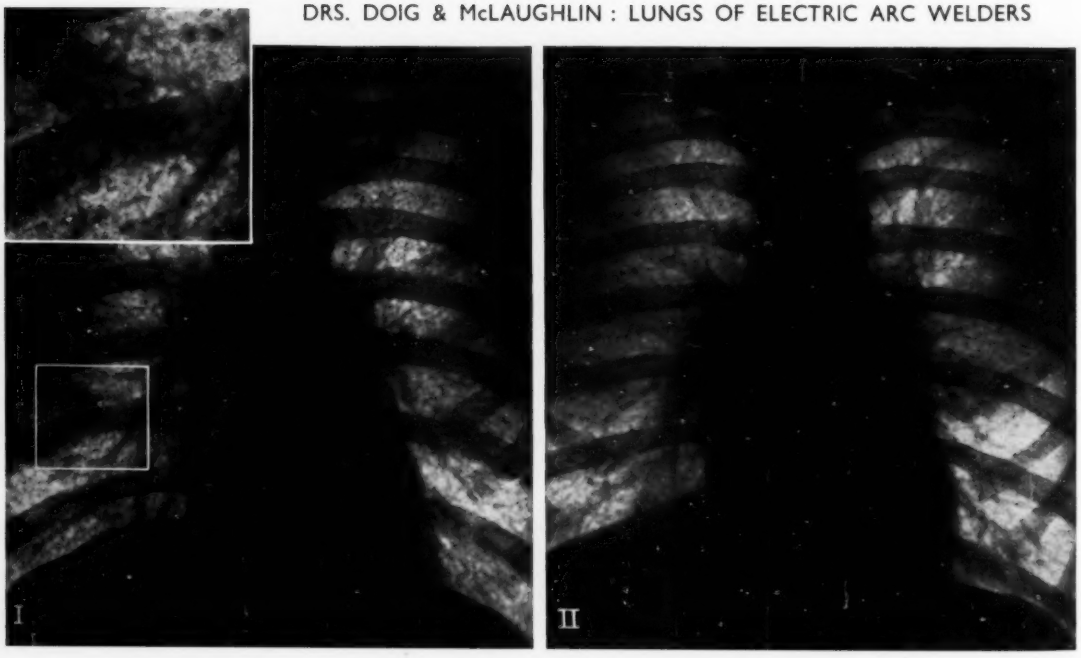
DR. MANSON-BAHR : DISEASES OF THE COLON.



DR. McEUEN, DR. SELYE AND PROF. COLLIP: EFFECTS OF ŒSTRIN ON RATS



DRS. DOIG & McLAUGHLIN: LUNGS OF ELECTRIC ARC WELDERS



DESCRIPTIONS OF ILLUSTRATIONS ON PLATE

DRS. DOIG AND MCLAUGHLIN

FIG. I.—Radiogram showing the fine mottling discovered in Case 1 (September, 1934). The portion outlined in white is reproduced (as an inset) on a larger scale.

FIG. II.—Radiogram from Case 2 (September, 1934).

DR. MCEUEN, DR. SELYE, AND PROF. COLLIP

FIG. II.—High magnification of endometrium showing metaplasia into cornified squamous epithelium. The islets of squamous epithelium in the submucosa are derived from deep prolongations of tubular endometrial glands. Note the marked fibrosis of the endometrium which simulates scar tissue.

FIG. IV.—Histological picture of a part of the tumour shown in Fig. III. Large cavernous sinuses surrounded by anterior lobe tissue.

FIG. V.—Small adenoma in the anterior lobe of an œstrin-treated rat; probably first stage of tumour formation. The cells in the area of the adenoma are much larger than those of the surrounding pituitary tissue.

FIG. VI.—Small adenoma of the intermediate lobe of the pituitary of an œstrin-treated rat. Note the irregular structure of the posterior lobe with light dots corresponding to vacuolised cells.

FIG. VIII.—Scirrhous fibro-adenoma of the mammary gland in an œstrin-treated rat.

set up by the inhalation of fume which arises during electric arc welding.

5. The probable composition of the fume has been discussed.

6. We wish to emphasise that these X ray appearances have been found in men who are apparently in good health.

7. Up to the present time we have come to no conclusion as to the exact diagnosis of the condition.

REFERENCES

1. Adler-Herzmark, J.: Zentribl. f. Gewerbehyg., 1929, vi., 193.
2. Bridge, J. C.: (a) Ann. Rep. Chief Inspector of Factories, Home Office, 1934, p. 68; (b) Ann. Rep. Chief Inspector of Factories, 1921, p. 70.
3. Williman, F. L.: Jour. Indust. Hyg., 1935, xvii., 129.
4. Titus, A. C., Warren, H., and Drinker, P.: Ibid., 1935, xvii., 121.
5. Koelsch, F.: Ibid., 1923–24, v., 87.
6. Drinker, P., Thomson, R. M., and Finn, J. L.: Ibid., 1927, ix., 331.
7. Dickson, A.: Brit. Med. Jour., 1935, ii., 602.
8. Anderson, R.: Ibid., 1935, ii., 640.
9. Wirtschafter, Z. T., and Schwartz, E. D.: Jour. Indust. Hyg., 1936, xviii., 158.
10. Westhofen: Zeits. f. Medizinalbeamte, 1934, xlvii., 85 (Abs. Jour. Indust. Hyg., 1935, xvii., 13).
11. Merewether, E. R. A.: Tubercle, 1933, xv., 78.

SOME EFFECTS OF PROLONGED ADMINISTRATION OF ŒSTRIN IN RATS

BY C. S. MCEUEN, M.D.

RESEARCH ASSOCIATE IN BIOCHEMISTRY, MCGILL UNIVERSITY, MONTREAL

H. SELYE, M.D., Ph.D.

ASSISTANT PROFESSOR OF BIOCHEMISTRY IN THE UNIVERSITY; AND

J. B. COLLIP, Ph.D., D.Sc., M.D., F.R.S.

PROFESSOR OF BIOCHEMISTRY

(WITH ILLUSTRATIONS ON PLATE)

THE discovery that the continued administration of œstrone, subcutaneously, led to squamous metaplasia of the uterine epithelium of castrate female rats [1] has been confirmed and extended by further experiments reported elsewhere [2] in which treatment was continued for periods up to 132 days. It is the purpose of this communication to record the results of experiments of even longer duration. Cramer and Horning [3] have reported the appearance of hæmorrhagic chromophobe adenomata of the anterior pituitary in 3 male mice of a series of 12 receiving external applications of œstrone dissolved in chloroform for prolonged periods, up to 44 weeks; many of their animals showed cachexia, atrophy of the spleen and thymus, and degenerative changes in the adrenal cortex—effects which they ascribe in part to hypopituitarism. Simple enlargement of the pituitary was observed in 8 of their series of 12. It is known that the administration of large doses of œstrin to female rats may lead to hypertrophy of the anterior lobe within a few days,[4] and that this is accompanied by enlargement, probably secondary, of the adrenal cortex; but these changes were much less marked in males or in castrates.

FIG. I.—Transverse section across the uterus of œstrin-treated rat. Note the enormous development of fibrous tissue in the submucosa which leads to partial obliteration of the uterine cavity. The epithelium shows no metaplasia in this case.

Six castrate female rats, initially 3–4 months old, received daily subcutaneous injections of 30 γ of œstrone, dissolved in corn oil, for 331 days; vaginal œstrus was maintained, with very rare lapses, throughout this period. The animals were sacrificed after a further 30 days, during which all (save one) were either left untreated or were injected with solutions of crystalline progesterone (corpus luteum hormone), and in either case had returned more or less rapidly to an anœstrus state. The progesterone-treated animals did not differ materially from those in which all treatment had been discontinued.

At post-mortem examination the horns of the uteri were found to be nearly solid, pearly white, and hard; histological study revealed an extreme hypertrophic fibrosis, pushing the mucosa and muscular coats aside and enlarging the volume of the organ (Fig. I.). Squamous metaplasia of the epithelium was present in five cases (Fig. II. on Plate). These alterations in the uteri were also observed in biopsy specimens taken between the 300th and 330th day of treatment; occlusion of the cervix with secondary pyometrium was not encountered in this series.

The pituitaries were enlarged in all cases, and large cavernous adenomata of the anterior lobe were present in three; one showed a small adenoma of the intermediate lobe, and vacuolisation of the posterior lobe was noted several times. In one case

two adenomata were observed in the anterior lobe of the same rat (Fig. III., and Fig. IV. on Plate). All showed multiple mammary milk cysts (Fig. VII.);

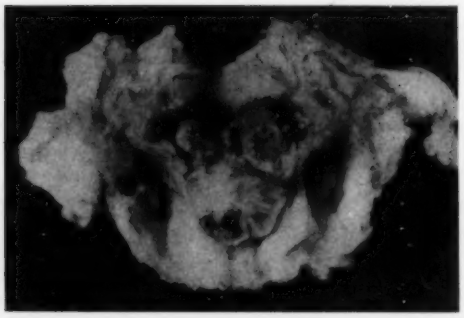


FIG. III.—Macroscopic picture of a large pituitary tumour in an œstrin-treated rat.

while other breast changes observed included an adenofibroma, whose scirrhous tissue invaded the spaces between the fibres of the pectoral muscle (Fig. VIII. on Plate). The adrenals were enlarged in five cases, and in one of these a cystic adenoma of the cortex was found on the left side (Fig. IX.); in the rat which received œstrin treatment up to the day when it was killed, however, cortical atrophy, hæmorrhages, and cysts were evident.

Five male rats, two of which were castrated during the experiment, received similar daily injections of œstrone for periods up to 344 days. As in a previous experiment,[2] the testes, penis, seminal vesicles, and prostate showed marked atrophy, but metaplasia and keratinisation were not observed. The pituitaries were enlarged in all cases, and in two (one normal,

FIG. VII.—Milk cysts in the mammary gland of an œstrin-treated rat.

one castrate) cavernous adenomata were discovered in the anterior lobe.

The animals selected for these experiments were taken at random from stock cages containing 20–50 rats each, which in turn are filled haphazard from the litter cages; the colony consists of some 6000 animals, and breeding is conducted without segregation of families; it is therefore improbable that all those which developed pituitary tumours, for instance, were of one litter or otherwise closely related. It is therefore unlikely that hereditary factors could have played an important part in producing the changes described. The incidence of

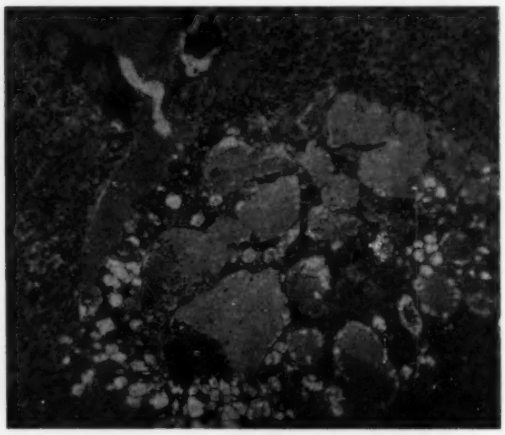


FIG. IX.—Cystic adenoma in the adrenal cortex of an œstrin-treated rat.

spontaneous tumours *of any kind* is very low in this colony.

This work was made possible by the generous support of Sir Charles Lindsay of Montreal. We are also indebted to Dr. A. Girard of Paris for supplying the œstrone; to Miss J. E. Williamson for technical assistance; and to Dr. J. S. L. Browne for preparing the progesterone.

REFERENCES

1. Selye, H., Thomson, D. L., and Collip, J. B.: Nature, 1933, cxxxv., 65.
2. McEuen, C. S.: Amer. Jour. Cancer (in press).
3. Cramer, W., and Horning, E. S.: THE LANCET, Feb. 1st, 1936, p. 247.
4. Selye, H., Collip, J. B., and Thomson, D. L.: Proc. Soc. Exp. Biol. and Med., 1935, xxxii., 1377.

TUMOUR OF THE PITUITARY INDUCED WITH FOLLICULAR HORMONE

BY Prof. BERNHARD ZONDEK

(*From the Gynæcological and Obstetrical Department of the Rothschild-Hadassah Hospital, Jerusalem*)

AS I reported a short while ago in THE LANCET,[1] the function of the anterior pituitary gland may be inhibited by administering large doses of œstrin over a long period of time. Both the growth hormone of the anterior lobe and the gonadotropic hormones are put out of action by the follicular hormone, so that experimental animals (rats) show inhibition of growth and atrophy of the gonads. In this way dwarfed animals with atrophic genitals are produced. I intended to describe in later reports the effect on other endocrine glands and on the anterior lobe of the pituitary itself. Meanwhile an article by W. Cramer and E. S. Horning[2] appeared four weeks

after my paper. The authors investigated the carcinogenic effect of œstrin by painting the skin of mice twice weekly with a 0·01 per cent. œstrin solution (α-folliculin) in chloroform. They studied the pituitary in twelve mice, which were treated over a prolonged period. Only one gland was normal to the naked eye; eight were macroscopically enlarged without an alteration in the general shape and without gross pathological lesions in the gland; and three were definite adenomatous tumours—nodular, round, deeply congested, and hæmorrhagic. In one case the tumour extended over the optic nerves and compressed them, producing degenerative changes; the authors described the tumour as a hæmorrhagic chromophobe adenoma of the anterior lobe. They believe that they have experimentally produced the syndrome of a disease known in man as Simmonds's disease (cachexia hypophysipriva).

EFFECT OF ŒSTRIN ON THE PITUITARY

In the following I wish to report, as I mentioned in my last paper, my findings in the pituitary of animals whose growth was inhibited by the administration of follicular hormone.

TABLE I

Weight of the Pituitary and Body-weight in Male Rats

(*a*) CONTROL ANIMALS

Number.	Duration of expt. (weeks).	Medication.	Body-weight (g.).	Weight of pituitary (mg.).
R 319 ..	14	Olive oil.	104	7·0
R 251 ..	16		160	11·4
R 279 ..	17		125	8·2
R 281 ..	18		160	13·6
R 250 ..	19		160	8·4
Average ..	16·8	—	141·8	9·7

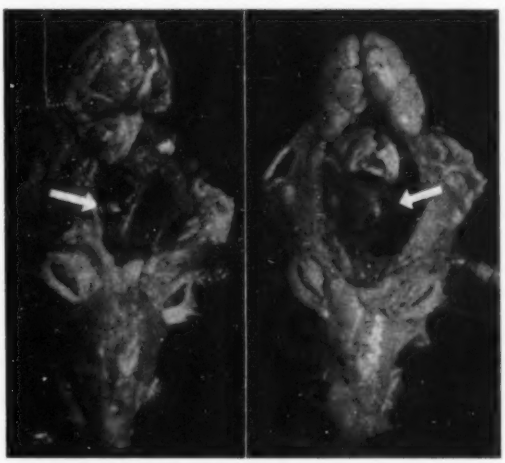
(*b*) EXPERIMENTAL ANIMALS

(*c*) Number. (*d*) Corresponding control animal.	Duration of expt. (weeks).	(*e*) Dose folliculin-menformon (M.U.) twice weekly. (*f*) Total dose.	Body-weight (g.).	Weight of pituitary (mg.).	Increase of weight (%).
(*c*) R 323 (*d*) R 319	14	(*e*) 5,000 (*f*) 140,000	70	9·0	28·6
(*c*) R 253 (*d*) R 251	16	(*e*) 10,000 (*f*) 320,000	100	43·1	278·9
(*c*) R 285 (*d*) R 279	17	(*e*) 10,000 (*f*) 340,000	95	16·1	96·3
(*c*) R 284 (*d*) R 281	18	(*e*) 5,000 (*f*) 180,000	100	20·6	51·4
(*c*) R 252 (*d*) R 250	19	(*e*) 5,000 (*f*) 180,000	95	41·6	395·2
Average	16·8	(*f*) 232,000	92	26·08	170·08

Whereas the gonads (ovaries and testes) of the animals undergo complete atrophy, the pituitary is enlarged. It is interesting to note, however, that an increase in the weight of the pituitary—i.e., of the anterior lobe—was not found in all animals. There is also a characteristic difference between the sexes. After prolonged treatment with follicular hormone,* the pituitary of male rats shows enlargement in all cases, while the pituitaries of the females are macroscopically unaltered. Table I. shows that while the weight of the pituitaries in male controls varies from 7·0 to 13·6 mg., with an average of 9·7 mg., those of male rats after folliculin treatment lasting from 14–19 weeks weigh from 9·0 to 41·6 mg., with an average of 26 mg. Comparing each animal with its individual control (Table I.) there was in every case an enlargement of the pituitary, the increase in its weight varying from 29 to 395 per cent. The body-weight therefore decreases by an average of about 30 per cent., the pituitary enlarges by an average of 170 per cent.

The results in female rats are quite different, though they also display stunting of the body growth. After treatment for 15 weeks—5000 M.U. (mouse units) of folliculin twice weekly—the body-weight of the treated animal is 33 per cent. less than that of the controls. However, there are no marked differences in the weight of the pituitary. The pituitaries of the controls weigh 10·9 mg. on an average, the pituitaries of the treated animals 12 mg. The period of treatment lasted in male and female animals 16 weeks on an average.

These experiments show that the functional inhibition of the anterior lobe of the pituitary—i.e., the production of stunted growth and atrophic genitals—appears equally in male and female animals, but that the reaction of the pituitary itself differs in the two sexes. The growth of the anterior lobe itself



Left: Brain of control rat (R 233), showing normal pituitary. Right: (R. 228). Tumour of the pituitary, after receiving 280,000 M.U. dimenformon.

cannot be held responsible for the defect in pituitary function because the growth hormone and the gonadotropic hormones are also diminished in females whose pituitaries are not enlarged. It is not the enlargement of the pituitary and the formation of a tumour which causes the syndrome of hypopituitarism—as is claimed by Cramer and Horning—because, if it did, the hormone would not inhibit the function of the pituitary in female animals.

Why the male pituitary reacts by enlargement while the female pituitary does not do so cannot be explained. It may be mentioned that Collip [3] and Evans [4] were able to produce considerable enlargement of the anterior lobe of the pituitary in female animals, but not in males, by prolonged treatment

* I am indebted to the Organon (Oss) for kindly supplying large amounts of Folliculin Menformon and Dimenformon.

respectively with prolan from pregnancy urine and with gonadotropic hormone from the blood of a pregnant mare. Here, too, the pituitaries of rats react differently, according to their sex, but in a reverse way from my experiments. Enlargement of the anterior lobe in the female is caused by giving gonadotropic hormone, whereas in the male animal it is the follicular hormone that produces enlargement.

EXPERIMENTAL PITUITARY TUMOUR IN A FEMALE RAT

Only in one experiment have I observed a considerable reaction of the anterior lobe of the pituitary in a female animal (R 228).

Treatment commenced at an age of four weeks and at a weight of 35 g. The rat was given 5000 M.U. twice weekly, 280,000 M.U. of folliculin in all. In the 28th week of treatment certain reactions pointing to cerebral disturbances were found in the animal. The rat turned and rolled only towards the right, ptosis of the right eye was present, the head was turned to the right, and the equilibrium of the animal was disturbed. It was therefore killed. On removal of the brain a very large tumour with a smooth surface was found in place of the pituitary (see Figure). It had a yellowish-green and in places dark red colour, and was the size and shape of a bean; the anterior and posterior lobe could not be identified as such. The optic nerves were invisible, being completely covered by the tumour, and the chiasma could only just be seen. The tumour weighed 250 mg., while the pituitary of the control animal was only 12 mg., an increase of over twenty times. On dissection the tumour was found to be very soft and crumbly; it was not possible to separate it completely from the nervi optici, because the tumour tissue had almost united with the nerves. I cannot yet make an exact statement regarding its histology, but I have sent it for examination to Prof. Erdheim of Vienna, who has an expert knowledge of the anatomy of the pituitary. I have myself examined a small piece of the tumour and I was impressed by multiple areas of hæmorrhage.

TABLE II

The Action of Œstrin on the Pituitary in Female Rabbits

No.	Dose of hormone (M.U.).	Duration of treatment (weeks).	Total dose (M.U.).	Weight of pituitary (mg.).
K 278	50,000 daily dimenformon.	3	1,100,000	17·6
K 269	50,000 twice weekly dimenformon.	8	800,000	10·8
K 233	15,000 twice weekly.	8	240,000	26·5
K 268	10,000 twice weekly.	12	240,000	24·0
K 266	12,500 twice weekly.	4	100,000	5·6
—	—	—	Average	16·92

It is impossible to state why in this case the pituitary of a female animal reacted by forming a tumour, while the growth of female pituitaries generally remained uninfluenced by the œstrogenic hormones. The treatment however of the animal in which the tumour was found was continued ten weeks longer than in other female animals, and it is possible that the duration of the treatment is an essential factor.

REACTION OF THE PITUITARY IN RABBITS

After I had found that the pituitaries of rats vary in their reaction according to sex, I examined the reactions of other rodents to the application of follicular hormone over a prolonged period. Immature female rabbits received 10,000–50,000 M.U. folliculin menformon or dimenformon, usually twice weekly.

Table II. shows an average weight for the pituitaries of the treated animals of 16·9 mg.; the same average weight was found in the control animals. After a longer treatment (12 weeks, K 268) the pituitary showed slight enlargement (24 mg.); pituitaries of similar weight, however, are also to be found occasionally in control animals. As we see, there is no marked influence on the size of the pituitary of the female rabbit after a prolonged treatment with follicular hormone. Whether or not this is also the case in the male animal is now being investigated.

SUMMARY

1. Administration of follicular hormone over a long period inhibits the anterior lobe of the pituitary so that the growth hormone and the gonadotropic hormone are not active. Dwarfed animals with hypoplastic genitals result.

2. The dysfunctioning pituitaries of such rats are enlarged and their weight may amount to four times the normal. This increase occurs in male rats only.

3. However, a very large tumour of the pituitary, produced in a female rat, was 20 times the normal size of the gland. This tumour produced signs of pressure on the brain and optic nerve.

4. The pituitaries of female rabbits do not enlarge after prolonged periods of folliculin administration. Whether or not this is the case in male animals is now being studied.

REFERENCES

1. Zondek, B.: THE LANCET, Jan. 4th, 1936, p. 10.
2. Cramer, W., and Horning, E. S.: Ibid., Feb. 1st, 1936, p. 241.
3. Collip, J. B., Selye, H., Thompson, D. L., and Williamson, J. E.: Proc. Soc. Exp. Biol. and Med., 1933, xxx., 590; Virchows Arch. f. path. Anat., 1933, xxiii., 290.
4. Evans, H. M., Simpson, M. E., and Williams, M. M.: Univ. California Publ. Anat., 1934, i., 161.

Clinical and Laboratory Notes

NINETEEN MONTHS' HUNGER-STRIKE

BY H. BASIL ROSAIR, L.R.C.S. Irel., D.T.M.

MAJOR, I.M.D.; SUPERINTENDENT AND MEDICAL OFFICER, CENTRAL PRISON, BAREILLY, UNITED PROVINCES, INDIA

Convict Munshi Khan resorted to hunger-strike on May 18th, 1934. His weight was then approximately 130 lb.

Regular forcible feeding was begun on July 2nd, but before that date he had been forcibly fed on eight or ten occasions. On July 2nd his weight was 95 lb. and there were definite signs of weakness and exhaustion; from that time until Oct. 15th it ranged between 91 and 96 lb. By December it had dropped to 85—the lowest recorded during his nineteen months' hunger-strike. Between December, 1934, and January, 1936, his weight varied between 85 and 105 lb., the increase or decrease being mainly dependent on the quality and quantity of liquid food given.

Hunger pangs were confined to the first seven days of the fast. Nausea was an unpleasant symptom from time to time, but usually it was easy to check with a little bicarbonate of soda in barley water. The mind was always very active—if anything more alert than normal.

Forcible feeding through the nose by means of a soft rubber tube was the only form of feeding resorted to. I was fortunate in that the prisoner after the first ten days or so of forcible feeding offered little or no obstruc-

tion. The type of food material and the quantity used was varied as circumstances demanded—i.e., according to the man's condition. Frequently I reduced the routine feeds to one a day, and this would be allowed to go on for many days till the weight came down to about 90 lb. The nourishment given was selected from the following: milk, soup, raw eggs, mung dal, barley water, Glucose D-Roboleine, orange juice, cod-liver oil, and olive oil. Within six weeks of giving up his hunger-strike in January Munshi Khan had regained almost all his lost weight.

In feeding hunger-strikers it is important to avoid vitamin deficiency and to remember the value of fats and carbohydrates compared with proteins. Only carbohydrates and fats are stored as reserve fuel for use when food is insufficient or not available; proteins are utilised (mainly) for tissue repair, but muscle cells are not actually destroyed during starvation and fully recover when food is consumed.

With a well-nourished body, or when the correct type of food is used in forcible feeding, sufficient fat can always be provided for a prolonged fast. During my 15 years as medical officer of jails I have often had to order and conduct forcible feeding and I am convinced that there are no permanent ill-effects either upon mental activity or muscular strength. There are of course definite risks and danger when a prisoner refuses to be fed forcibly and offers obstruction with all the strength he can command; the possibility of exhaustion followed by collapse and even death must be borne in mind. Pneumonia owing to food entering the bronchial passage can ordinarily be prevented by not pouring any food into the funnel till the tube has passed well down.

So far as I am aware, no case of hunger-strike lasting as long as 19 months has previously been recorded.

EXTRADURAL HÆMORRHAGE IN A CHILD OF 13 MONTHS

By A. F. Goode, M.B. Birm., F.R.C.S. Eng.

ASSISTANT IN THE SURGICAL UNIT, THE WELSH NATIONAL SCHOOL OF MEDICINE, ROYAL INFIRMARY, CARDIFF

I have been able to find only one previous record [1] of middle meningeal hæmorrhage in a child so young as the case here described.

A girl, aged 13 months, was dropped from her father's arms, fell on her head from a height of about four feet, and at once commenced to scream, continuing to do so for about half an hour, after which she apparently went to sleep. However the mother noticed that the child did not close her eyes and thinking that she was having a fit, brought her to hospital. On admission to the Cardiff Royal Infirmary at 2 A.M. on June 21st, 1935, two hours after the accident, the child was unconscious, and soon after admission commenced to have attacks of twitching involving the left side of the face and the left arm, and later the left leg.

Physical signs.—When first seen by me at 5 A.M. the child was still unconscious with a right temporal hæmatoma and the left arm and leg showing flaccid paralysis. There was conjugate deviation of the eyes to the right, the pupils themselves being equal but small and reacting to light. The pulse-rate which had been 80 on admission was now 158. In view of the temporal hæmatoma and the twitching of the left side of the body followed by paralysis, a diagnosis of right middle meningeal hæmorrhage was made.

Operation.—Immediate operation was carried out under local anæsthesia. A temporal skin flap was turned down. Through a fissured fracture running across the squamous temporal blood was oozing. A trephine hole was made in the skull about 1 in. above the zygoma, a considerable quantity of jelly-like clot removed and the meningeal vessels exposed. Bleeding was now profuse, from beneath the bone, and the trephine hole was enlarged upwards and it was found that both the middle meningeal artery and vein (anterior division) were torn. Both artery and vein were under-run with a catgut suture. It was necessary to tie both ends of the vessels to stop the bleeding. The wound was closed with a small drainage-tube.

The child recovered consciousness about four hours afterwards and had a very stormy convalescence for a few days, the temperature never falling below 102° F. and reaching 104° on several occasions. After the fifth day the temperature remained within normal limits. For three days there was a tendency for the eyes to deviate to the right. The left-sided paralysis steadily decreased but it was nearly three weeks before it had disappeared completely. When seen in January of this year the child was perfectly well.

The age and absence of concussion were misleading features in this child's history; but the fits and paralysis, together with the temporal hæmatoma, made the diagnosis more obvious. In fact extradural hæmorrhage, more often than not, appears to give atypical symptoms.

The necessity for tying both ends of the vessels in this case gives support to Wood Jones's theory of the origin of the bleeding, which he considers comes from the vein. Although consciousness was fairly rapidly regained, the paralysis persisted for a surprisingly long time after craniotomy and ligature of the vessels.

[1] Wakeley, C. P. G., and Lyle, T. K.: Problem of Extradural Hæmorrhage. A Report of 14 Cases. Ann. of Surg., 1934, c., 39.

PANTOCAIN L
A REPORT ON 160 CASES

By Ahmed Abdel Nabi, D.M. Cairo

CAPTAIN, EGYPTIAN ARMY; SURGEON, EGYPTIAN ARMY GENERAL HOSPITAL, CAIRO

For the last thirty years spinal anæsthesia has been used in Egypt on a very large scale. The drug mostly employed was Stovaine, on which the single-handed surgeon in the country relied for the greater part of his work on the abdomen and the lower extremities. Its use in hospitals has taken a big burden of anxiety and worry from the shoulders of the surgeon. The drawback of stovaine was the fall in the blood pressure, which often caused shock. Again, the rapid disappearance of the anæsthesia made it necessary to administer a general anæsthetic in the last stages of major operations.

Having given stovaine in 1500 cases during the last few years, and having gained much experience of its use, I sought some other drug that would not cause a big fall in the blood pressure. Pantocain L * was chosen for trial, and I started my series of 160 cases in November, 1934. As usual when trying new drugs I was very careful and cautious in selecting my first few patients, but the results were so encouraging that I now believe that pantocain is the spinal anæsthetic that should be used everywhere.

Pantocain (*p*-butyl-aminobenzoyl-dimethyl-amino-ethanol hydrochloride) is a novocain derivative. It is a white crystalline odourless powder, which is readily soluble in water and normal saline. It is not affected by boiling and it keeps stable indefinitely. It is supplied in ampoules, each containing 3·75 c.cm. of an 0·8 per cent. solution of the drug (i.e., half a grain in each ampoule). The specific gravity of the

* Made by Bayer Products Ltd.

solution is lower than that of the cerebro-spinal fluid, a fact which should be always borne in mind.

My series of cases consisted of 123 males and 37 females, ranging from between 15 and 55 years of age. The drug is contra-indicated in cases of arterio-sclerosis, severe sepsis, severe anæmia, old age, and nervous disorders.

TECHNIQUE

The instruments and drugs required are: (1) morphia (0·01–0·02 g.) and atropine (0·001 g.) ampoules; (2) pantocain L in ampoules (3·75 c.cm.); (3) Pantocain Racedrin * (2 c.cm. containing grs. 2 of racedrin); (4) one 2 c.cm. record syringe; (5) one 10 c.cm. record syringe; and (6) a long thin-bored needle for the spinal puncture.

Preparation of the patient.—A mild aperient is given one day before the operation. *Strong purgation is not required.* An enema is usually administered in the early morning, but this could be omitted in weak patients. Twenty to thirty minutes before the operation an injection of morphia and atropine is given and the patient is kept in a quiet place.

Position and doses.—The specific gravity of the pantocain solution being lower than that of the cerebro-spinal fluid, the drug should on no account be administered while the patient is sitting up. He should always be lying on the side opposite to that on which the operation is to be performed, but if there is to be a double operation—for example, a double inguinal hernia—or if the incision is in the median line he lies on his left side. He must be put in the Trendelenburg position, the degree of tilting the table varying according to the site of the operation: the head should always be kept lower than the buttocks. Before injecting the pantocain, an average of 1·5 c.cm. of pantocain racedrin is injected along the proposed line of the lumbar puncture, to act as a local anæsthetic and to raise the blood pressure. If the blood pressure is high, only 0·5 c.cm. is to be injected.

The accompanying Table shows the dose and site of injection, and the inclination of the table, according to the operation:—

—	Dose in c.cm.	Site of injection.	Speed of injection in secs. per c.cm.	Inclination.
Lower extremities ..	2	L. III.–IV.	5	10°
Perineum	1	L. IV.–V.	5	10°
Lower abdomen ..	2–2½	L. IV.–V.	4	5°
Middle abdomen (to umbilicus)	3	L. III.–IV.	4	5°
Upper abdomen ..	3½	L. II.–III.	3	5°

When the racedrin solution has been injected into the space chosen, the long narrow-bore needle is pushed into the spinal canal in the usual manner. The stillette is taken out and the 10 c.cm. syringe containing the pantocain solution is jointed to the needle, and an equal amount of cerebro-spinal fluid is drawn and the mixture is then slowly injected. The patient is now turned on his back and the table is tilted more (5–10 degrees) into the Trendelenburg position, according to the site of the operation.

After-treatment.—The foot of the bed is raised on blocks for a period of 8–12 hours. The patient may be given fluids very early after the operation.

EFFECTS

Onset and duration of anæsthesia.—Anæsthesia generally sets in after 1–2 mins., but in some cases the onset is delayed up to 8 mins. The duration of anæsthesia is 2–4 hours and the patient is generally unable to move his lower limbs before 5–8 hours.

The blood pressure.—I am accustomed to record the pulse and blood pressure: (1) before morphia; (2) after morphia; (3) 10 and 20 minutes after pantocain injection; and (4) at end of operation. The blood pressure taken before the operation gave me an idea of the amount of racedrin to be injected. The normal blood pressure is better checked a day or two before the operation. Patients sometimes get very nervous immediately before; this causes a false reading to be recorded and, consequently, a wrong dose of racedrin to be given; both systolic and diastolic readings are affected in this way. One of the three patients in whom I noticed a fall in blood pressure was a little worried and complained of dragging pains in the abdomen. I gave 5 c.cm. of coramine intravenously and he again became cheerful and happy.

On the average there was a rise of 20 mm. in the systolic pressure, which appeared ten minutes after injection and lasted over half an hour; in only three cases did I notice a fall and it was slight. The pulse-rate was increased.

TWO ILLUSTRATIVE CASES

The following is a record of blood pressure given in two illustrative cases:—

CASE A.—Aged 26. Acute appendicitis.

CASE B.—Aged 40. Complete uterine prolapse and lacerated cervix.

—	Blood pressure mm. Hg.				Pulse-rate.	
	Systolic.		Diastolic.			
	A.	B.	A.	B.	A.	B.
Before morphia ..	115	135	70	86	100	72
After ,, ..	115	135	75	84	98	72
10 minutes after pantocain ..	140	155	90	100	110	78
20 minutes after pantocain ..	140	150	90	96	108	78
At end of operation	130	140	85	90	96	75

	A.	B.
Racedrin, c.cm. ..	1·5	1·25
Pantocain, c.cm.	3	1·5
Space injected ..	Lumbar 3–4	Lumbar 4–5

CONCLUSIONS

(1) The drug is safe and the anæsthetic effect lasts long. (2) Little or no headache follows its administration. (3) Retention of urine is rare (2 per cent.). (4) No cases of paralysis have been observed. (5) There is little or no fear of a fall in the blood pressure, as compared with other spinal anæsthetics.

I should like to offer my sincere thanks to Major FitzGerald Powell Bey, principal medical officer, Egyptian Army, and Major R. J. Rosie Bey, senior medical officer, Egyptian Army General Hospital, for their encouragement and for allowing me to use this drug in the Egyptian Army General Hospital.

BRISTOL CHILDREN'S HOSPITAL.—A new out-patient department, which will cost about £24,000, is urgently needed at this hospital. During the last four years the hospital has been rebuilt at a cost of £40,000, and a nurses' home erected. A great many children assist the institution, thirty-two schools contributing £25 a year each to support a cot.

MEDICAL SOCIETIES

MEDICO-LEGAL SOCIETY

AT a meeting of this society held at Manson House under the chairmanship of Sir WILLIAM WILLCOX on March 26th, an address was given by Dr. L. A. WEATHERLY on

Debatable Medico-Legal Episodes

in his long life of practice as a mental expert. It was in 1886, he said, that he became an alienist. His father was a country doctor with 13 children, eight of them boys, who owed their good education to the fact that their father had a wealthy resident patient, an eccentric man of genius, a schoolfellow of Thackeray and a friend of Gladstone. This was the background of his youth and in his student days at Bristol he spent his spare time at the county asylum, Fishponds, with George Thompson. In 1877 when he married, his wife consented to have a resident patient. He joined the Medico-Psychological Association and there got to know John Bucknill, Hack Tuke, George Savage, David Barr, Urquhart, Yellowlees, Clouston, Mercier, and—an association that meant more to him than any other—Henry Maudsley. In 1886 he bought a private mental hospital at Bath and a few years later was appointed deputy coroner for Somerset. The first inquest he held was on an imbecile child who had been hounded to death by drowning in the village pond. On arriving he found the jury had already viewed the body and were assembled in the inn around a table on which was a punch bowl and a pipe and tobacco was provided for each juror. He left the place a very unpopular man. At Bath he became friendly with the police surgeon, who was horrified at the number of boys sent to prison for trivial offences. Permission was obtained for Dr. Weatherly to see some of these juvenile offenders, and he liked to think he was instrumental in getting different treatment for many of them. In 1908 he was called to give evidence before the Royal Commission on the Weak-minded. He had a firm belief in the value of the coroner's court, and hoped its privileges would not be taken away.

His first important medico-legal case was a charge of murder heard at the Taunton Assizes in 1886 before Mr. Justice Field. Mr. Thomas Bucknill and Mr. Charles Matthews appeared for the defence. The accused was the son of a well-known medical officer of health. He was born at an asylum while his mother was suffering from the melancholic stage of manic-depressive insanity. Soon after birth he was seen to be abnormal; at school he developed epilepsy. His mother was keenly attached to him, but his two sisters shunned him, and after one of them had deprived him of something he was in the habit of having he became very angry; he was found walking in the streets of the town and his sisters when they passed him cut him dead. He felt he could brook their cruelty no longer, went home and wrote a letter containing these words:

"Dear father and mother, I leave everything that belongs to me to my dear mother. I have been treated so badly by my sister C—— that I feel I must put an end to her life by shooting; and, knowing that I shall have to die for it, I shoot myself. Good bye to all; hoping you will have a happy time. Good bye, dear father and mother."

With that letter, and with a judge determined to interpret the McNaghten rule in its narrowest sense, the poor alienists had a rough time. The judge would not allow Dr. Weatherly to give his opinion on the condition of the boy's mind, and witnesses were tied down to answering the question "Can you say that this boy did not know the difference between right and wrong in the face of that letter?" Dr. Needham, later superintendent of Barnwood House, had been subpœnæd to give rebutting evidence; he had to tell the prosecution that his evidence would be favourable to the defence and was not called. The verdict was "Guilty but insane," and the boy was sent to Broadmoor. Some years later he hanged himself at the prison. The alienist giving evidence on insanity was sometimes placed, Dr. Weatherly said, in a difficult position; he could not declare that he had microscopically examined the cells in the brain of the accused, and that certain cells believed to be concerned with intellect were seriously affected; nor could the will power or the emotions be weighed in a scale and assessed. Moreover, the affective portion of the mind was often responsible for a crime without the intellect acting at all. The judges who adhered to the McNaghten rule took no account of that affective region of the mind. His own belief was that grades of murder should be recognised.

Kleptomania, Dr. Weatherly contended, was a true disease of the mind. He had had to give evidence in many cases, and his experience told him that if the tendency was not dealt with early it would develop into systematic thieving on a larger scale. A case of this kind, tried by Mr. Justice Denman, was that of a post office employee in Bristol who had been taking to his lodging registered letters and other postal packages, also boxes of knuckle bones, and silks and satins. It was ascertained that he had been a butcher's boy, and had later been employed in a haberdasher's shop. Dr. Weatherly spent three hours in the witness-box and showed that the man had many of the stigmata of imbecility. The verdict was "Guilty but insane" and the patient was allowed to remain at Fishponds. Dr. Weatherly next dealt with sexual offences, commenting on the extraordinary position of the law which allowed magistrates to decide on some offences while others had to be sent to the assizes. He related the case of a public official charged with indecent exposure; the man's sexual life had completely altered after an operation for appendicitis. After six months under medical care he was able to go back to his family. Dr. Weatherly then referred to Section 49 of the Lunacy Act, relating a case in which the asylum superintendent and his staff refused to allow a patient to be visited or his papers to be inspected. The law, he submitted, required amendment; the matter was discussed by the Medico-Legal Society some years ago.

In conclusion, Dr. Weatherly said he had watched with great interest the growth of the Medico-Legal Society, but he thought its practical usefulness should be extended. For instance, Mr. Claud Mullins had made out a strong case for some alteration of the law in sexual offences. He wanted the society to set up a parliamentary bills committee.

Mr. Justice HUMPHREYS said he did not think there was any likelihood that coroners' courts would be abolished. Somebody must deal with the man found with a broken neck, who might have had it broken by somebody, or might have fallen out of a window, or might have committed suicide. A good

thing was done when Parliament decreed that as soon as a person was in custody for causing the death of somebody, the coroner's inquiry must cease. He had found coroners doing their very difficult work not only fairly but with great tact. He refused to be drawn into a discussion of the McNaghten rules; he was tired of them, and, he added, they were getting rather old.

Sir LAWRENCE BROCK (chairman of the Board of Control) said that Government departments were often blamed because legislation did not keep pace with the hopes of enthusiasts; people should remember that no Government could legislate far, if at all, in advance of public opinion. Hence the value of societies of this kind which could help to bring conflicting views to a focus and to educate public opinion. He hoped the desire for the humaner treatment of mental disorder which Dr. Weatherly had manifested in his long life would continue to animate the members of the society.

The CHAIRMAN, in thanking Dr. Weatherly for his address, said it was to him that the Medico-Legal Society owed its inception.

ROYAL SOCIETY OF MEDICINE

SECTION OF RADIOLOGY

AT a meeting of this section held on March 20th the chair was taken by Dr. C. G. TEALL, the president, and Dr. E. W. TWINING opened a discussion on the value of

Radiology in Neuro-Surgery

The neurologist and neuro-surgeon, he said, had been fortunate at finding, just when they needed it, a development of radio-technique adequate for their purpose. The common intracranial tumours were gliomas (40–50 per cent.) angiomas, tuberculomas, meningiomas, pituitary tumours, acoustic neuromas, and cysts. Gliomas came low in the group producing direct radiological signs. There might be local bulging of the skull, a visible vessel over the tumour, or hydrocephalus. They sometimes calcified, showing a single dot, multiple dots, convoluted or radiating trabeculæ, or a circular shadow. Meningiomas were not invasive but pushed the brain out of the way and often produced direct radiological signs. Some of the evidence was extremely difficult to assess. Calcification was rather uncommon in these tumours, and could not be distinguished from that associated with glioma. Pituitary tumours (20 per cent. of the total) appeared in the first half of life and the patient might go blind suddenly if the diagnosis were not made early. The sella was ballooned, often V-shaped; the anterior clinoids remained unaffected usually, but sometimes were tapered or pulled upwards. The condition had to be distinguished from the altered sella due to intracranial pressure. An arachnoid cyst might give signs indistiguishable from those of a pituitary tumour. Acoustic neuroma (9 per cent.) showed often an erosion or dilatation of the internal meatus, which was best demonstrated by Towne's method. Erosion of the petrous might be due to cholesteatoma resulting from middle-ear disease. Suprasellar tumours (5 per cent.) most often grew up from Rathke's pouch in young people who showed hypopituitarism and polyuria. X rays might show calcification but gross alteration of the sella was rare. Ventriculography was helpful in the diagnosis of these tumours. Hydrocephalus yielded direct signs: rounded and thinned skull, widened sutures, and deepened digitate impressions in children, but often only sellar erosion in adults. Ventriculography was useful here also. The problem was to find where the block was. A head-tilting method would often fill the posterior part of the ventricular system; if the ventricle did not fill with this method there was nearly always a lesion. The infundibular recess seemed to press on the sella and cause osteoporosis of the bone, often quite flattening the pituitary. The third ventricle might be deformed by such lesions as suprasellar meningioma, optic nerve glioma, aneurysm of the anterior cerebral artery, pituitary tumours, craniopharyngeal cyst, and glioma of the optic chiasma. The use of Thorotrast had certain advantages in the radiology of cranial lesions.

THE MENINGIOMAS

Mr. HUGH CAIRNS said that meningiomas were for the most part benign and attached to the dura. They might be found in the vault or base. Typically they were composed of spindle cells with a tendency to whorl formation in which at times calcium—or even bone—was deposited. Sometimes they were part of a general neoplasia. Some of them gave no X ray signs. A few showed only signs of raised intracranial pressure, but more often bone formation or bone invasion was visible. The reaction to invasion was usually excessive deposition of bone, but might be excessive absorption. Meningiomas on the base of the skull produced such symptoms as proptosis. Areas of increased thickening might be seen without palpable lump. An important sign was a small endostosis on the inner surface, indenting the meningioma. These endostoses were not always associated with thickening of the bone; traction seemed to be one of the factors in their production. Some of them showed as areas of diminished density. Tangential views were essential if any area showed unusual vascularity, with vessels converging towards a point. The vascular changes in meningioma included increase in number and size; appearance of numerous fine channels, usually inside, sometimes in the substance and occasionally on the outer table; and increase in size and number of the diploic channels. Radiograms of abnormal vessels warned the surgeon when to anticipate excessive blood loss at operation. Some meningiomas obtained a lot of their blood-supply from the cerebral vessels and in this case the bone changes were much less intense. The olfactory groove tumours were the most difficult to diagnose; they showed a dark line along the groove, but this might appear in normal skulls and was not diagnostic unless the patient had also lost his sense of smell. Osteoma showed much sharper outlines than meningiomas. Leontiasis ossea gave rise to dense areas in the skull. Head injuries in childhood and syphilitic osteitis of the skull might show radiographic appearances resembling meningioma. Metastatic carcinoma could not be distinguished radiographically, and chronic alcoholic meningitis might closely resemble meningeal tumour. Positive radiological evidence had been available in 70 per cent. of his cases.

THE LATERAL VENTRICLES

Dr. M. H. JUPE said that calcified tumours within the lateral ventricle were uncommon. The more deeply the tumour lay the more difficult was both diagnosis and operation. Calcification was therefore an inadequate guide in any case. Ventriculography

gave the information required. Perforation of the septum lucidum might be revealed by "waviness" without bulging. Congenital absence of the septum was easily recognised. Tumour of the corpus callosum had to be distinguished from congenital absence; it did not show the convexity of the latter condition. If the foramen of Monro were blocked a single injection would not fill both ventricles; it was important to know on which side the bulk of the tumour lay. When the tumour arose more posteriorly the ventricles were more separated, and an antero-posterior view in a modified Towne position was useful. A large tumour at the base would deform the lateral ventricle. Failure to fill the descending horn pointed to temporal lobe involvement. Pure basal ganglia tumours and cysts of the third ventricle gave little indication of their origin, but could be distinguished from each other by air injection. As the former were treated by decompression and radiation and the latter could be removed, diagnosis was important. Sometimes stereoscopic views would reveal tumours not seen in direct views.

THE OPTIC CANALS

Mr. G. JEFFERSON pointed out that the examination of these canals had many applications and was quite simple. The cerebro-spinal fluid space was carried forward along the optic nerve and the prolongation might be dilated in hydrocephalus. An intrinsic tumour of the nerve itself produced the maximum disturbances. It was most important to examine the canals in cases of suspected chiasma tumour which might extend forwards into the nerve. To secure good views the head must be carefully positioned by a standardised technique. The normal canals attained a size of about 5 mm. at the age of 3 and thereafter did not alter. Erosions of the bony bridge between the optic canal and the sphenoidal fissure were caused by aneurysm and were visible on radiography. Meningioma from the anterior wing of the sphenoid caused disappearance of all the structures—and not the suppression of the bridge with a fairly normal optic canal. Meningiomata of the olfactory groove caused monocular blindness by pressure on the nerve and not by affecting the canal.

CEREBRAL BLOOD-VESSELS

Mr. D. W. NORTHFIELD said that visualisation of the vessels could give valuable information if they were properly filled and the normal patterns were known. The external carotid circulation was slower than the internal carotid and therefore the superficial vessels were not seen. According to the number of seconds of delay between the injection of thorotrast and the exposure, the arterial, sinus, or cortical venous systems were visualised. Abnormal collections of thorotrast indicated aneurysm or congestion. Vascular meningiomas showed typical smudge-like opacities. Vascular gliomas showed many large parallel vessels of all calibres. A tumour could be localised by displacement of vessels. Pituitary tumours might affect the carotid sinus, straightening out the carotid syphon curve. Tumours of the temporal lobe were often difficult to diagnose, but were shown clearly by displacement of the Sylvian vessels upwards.

TUBERCULOMATA

Dr. J. PURDON MARTIN showed slides illustrating tuberculomata shadows. In the acute stage they did not show on the film but later they calcified and then the patient often began to suffer from fits. In one of the few cases that had been verified by operation the shadow was near the surface and lobulated. The outline was always irregular and sharply defined and the calcification dense. The aneurysm shadow was much more regular in outline.

The PRESIDENT said that, while much of the work was highly specialised, certain signs were clear for all who had eyes to see, and radiologists must learn to make early diagnosis if the full value of radiology in neuro-surgery was to be obtained.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY

To the account of a meeting of this society given in our last issue may be added the following note on

Repeated Ectopic Pregnancy

Dr. J.W. BRIDE, under the title of Recurring Ectopic Pregnancy, reported the case of a woman who had (1) a normal pregnancy by her first husband; (2) a left ectopic pregnancy by her second husband, 13 years later, which was treated by salpingo-öophorectomy; (3) a normal pregnancy 2½ years after the ectopic pregnancy; and (4) an ectopic pregnancy nine months after the second normal pregnancy. At the operation for the first ectopic pregnancy the right appendages were regarded as normal—a finding which seemed to be confirmed by the subsequent normal pregnancy. There was no disease of the appendix, no history suggestive of gonorrhœal infection and no sign of such infection at the second operation. The puerperia in each pregnancy had been uneventful.

Prof. MILES PHILLIPS thought it better to reserve the term "recurrent" or "recurring" for cases of tubal pregnancy in a tube which had been repaired at a previous operation after incision into its wall to remove a tubal mole. The term "repeated" was in general use for cases of pregnancy in the opposite tube after a previous operation (generally excision) for a tubal pregnancy. He referred to a case of recurrent tubal pregnancy in a conserved tube, after an interval of 16 months, which necessitated salpingectomy. He also recalled F. W. Ramsay's well-known case of successful uterine pregnancy after two operations for tubal pregnancy, in the first of which a tube had been removed and in the second conserved. On the other hand, Aleck Bourne had recorded fatal rupture of pregnancy in a conserved tube.

Mr. C. H. WALSH said he had records of 80 ectopic pregnancies, 43 of which were on the right side and 37 on the left. Half were tubal abortions and half tubal ruptures. Slightly over half were in multiparæ; slightly over half were presumed to be due to congenital defects of the tube, and slightly less than half to old infection. Of the 80, 5 were recurrent, 4 in the opposite tube, and 1 in the stump of a partial salpingectomy. There were no immediate deaths in the series, but 1 death three years later from intestinal obstruction.

Dr. BRIDE, in reply, agreed with Prof. Phillips about terminology. The second ectopic pregnancy had been treated conservatively by tubal resection, and he hoped that if the patient's wishes were fulfilled, and she became pregnant, the result would not be a cornual pregnancy.

REVIEWS AND NOTICES OF BOOKS

Insulin

Its Production, Purification, and Physiological Action. By DOUGLAS W. HILL, B.Sc. Brist., Ph.D. Liverp., Lecturer in Chemistry, University College, Exeter; Special Lecturer in Organic Chemistry, University of Bristol; and FREDERICK O. HOWITT, M.Sc., Ph.D. Lond., F.I.C. With a foreword by Prof. E. C. DODDS. London: Hutchinson's Scientific and Technical Publications. 1936. Pp. 219. 12*s.* 6*d.*

THOUGH a large number of books have been written on insulin, few have been concerned with its more chemical aspects. These take up a large part, approximately one-half, of this monograph, which aims at giving a complete summary of the literature on insulin except that dealing with its clinical applications. Anyone who has attempted to keep abreast with this subject will be grateful to the authors for the most exhaustive presentation of the work done on its chemistry and preparation that has yet appeared. It is designed for specialised workers and therefore includes, at the end of each chapter, references to all the original sources made use of. The number of publications dealt with is exceptionally large for a book of this size; the name-index alone occupies some 24 columns. This constitutes such a valuable feature that it is perhaps ungrateful to suggest that the inclusion of a list not only of original communications to scientific journals, but of the more important reviews and monographs by established authorities would have been a useful addition.

After a brief introductory survey of diabetes mellitus the chemical and preparative section opens with a summary of the pioneer work on the isolation of the hormone, culminating in the discoveries of the Toronto workers in 1921 and the following years. The chapter on the methods of preparation employed by various workers and the yields of active principle obtained is excellent. The distribution of insulin in different tissues is also reviewed here. There follows a description of the methods used for purification of the crude material, and a valuable account of the chemical and physical properties is given. This includes a consideration of crystalline insulin and of the chemical nature of the highly purified substance. Considered in relation to this chemical work the final chapter on possible substitutes for insulin makes interesting reading, though it is clear that no satisfactory substitute for the natural hormone is available as yet. The substances hitherto discovered, whether synthetic or natural, throw little light on the pharmacological mechanism of insulin action, but in so far as they may in the future lead to the preparation of effective substitutes, the definition of their properties is timely.

Of the remainder of the book some 40 pages are devoted to the physiological properties of the hormone, including sections on hypoglycæmia, changes in composition of body fluids following insulin administration, and the relation of insulin to other internal secretions. The authors then review the mode of action of the pancreatic hormone and proceed to consider the regulation of insulin secretion, the physiological control of blood-sugar level, the relation between the internal and external secretions of the pancreas, and finally the present state of knowledge of the effects of insulin upon carbohydrate metabolism. The wide differences of opinion on this subject to which conflicting experimental results have given rise, make it difficult to present a fair picture. On the whole this has been achieved, though occasionally it may seem that due weight is not given to certain important observations, probably from a desire to give space to all relevant ones. The concluding chapter on the biological assay of insulin preparations will be of practical value to those whose duty includes such determinations. The typography of the book is unusual in a scientific production and will not appeal to those who dislike prominent headlines. But there is something to be said for the view that highly technical matter is difficult to read and that help in differentiating the sections and subsections should not be despised.

Surgical Diseases and Injuries of the Genito-urinary Organs

Second edition. By Sir JOHN THOMSON-WALKER, M.B., C.M. Edin., F.R.C.S. Eng., Consulting Urologist and Emeritus Lecturer on Urology, King's College Hospital; Consulting Surgeon, St. Peter's Hospital. Edited by KENNETH WALKER, M.B., B.C. Camb., F.R.C.S. Eng., Lecturer on Venereal Disease, St. Bartholomew's Hospital; Surgeon with charge of Genito-urinary Department, Royal Northern Hospital. London: Cassell and Co., Ltd. 1936. Pp. 974. 32*s.* 6*d.*

THE first edition of this book appeared in 1914. It quickly established itself in this country as a standard work, and sold so widely abroad that soon the edition was exhausted and the book became unobtainable. Unfortunately the war and the obligations of his practice prevented the author from giving up the time necessary to bring out a second edition. During the last 20 years urology has advanced rapidly as a branch of surgery, and in order to bring the book up to date it has been necessary to rewrite most of it.

The new edition retains the original aim of reflecting current opinions of the day and at the same time bearing the impression of the experience and individual views of the author. In order to lighten the author's task Mr. Kenneth Walker has undertaken the work of editor, but Sir John Thomson-Walker has coöperated actively in the work of revision and has himself contributed many of the new chapters. The editor's main embarrassment must have been the wealth of new material at his disposal. Additional chapters on renal function tests, transurethral operations, obstruction at the bladder neck, impotence and sterility have been included. Amplifications elsewhere have been made necessary by the increasing importance of X rays in urology, not only in the realms of diagnosis but also of treatment. When the first edition was being prepared pyelography was in its infancy. It has since gained for itself a prominent position among aids to diagnosis, and training in interpretation of pyelograms has become an indispensable part of the urologist's equipment; plates illustrating the typical pyelographic appearance of different lesions of the kidney are interspersed throughout this book. All the plates (25 in colour and 33 in black and white) are of high quality, and nearly 300 illustrations are incorporated in the text. Most of the coloured plates are reproduced from paintings made by Mr. Thornton Shields in the operating theatre of appearances seen through the

cystoscope. They are sufficiently realistic to help those who are not expert cystoscopists to recognise the lesions portrayed.

The labour involved in bringing this work up to date has been well spent, and it will be welcomed at home and abroad as a sane presentation of current British teaching.

Die Störungen des Lichtreflexes der Pupille

bei den luetischen Erkrankungen des Zentralnervensystems. Beiträge zur Frühdiagnostik der Lues nervosa. By Dr. OTTO LÖWENSTEIN, formerly Professor at the University of Bonn, at present at Nyon, Switzerland (Klinik la Métairie). Basle: Benno Schwabe and Co. 1935. Pp. 92. RM.4 (5 Swiss francs).

Dr. Otto Löwenstein has long made a special study of the reaction of the pupil to light, both in health and disease. For his purposes the ordinary clinical test is wholly inadequate and even the pupilloscopes devised by Hess and Sommer are insufficient. The first to use kinematography in this connexion was Weiler, but his method entirely fails to measure the consensual reaction of the unilluminated eye. By his improved method Löwenstein claims to have invented a kinometographic apparatus by means of which all the phases of the direct reaction to light of the pupil and also of the consensual reaction can be studied. The initial difficulty of photographing a pupil in the phase of dilatation is got over by means of filtering the light through blue-violet reflectors, and the complete apparatus includes a device by which the various phases and their extent can be represented by a tracing on paper. A number of diagrams of curves so taken are reproduced and by means of them the following points are elucidated. There are four typical varieties of the normal pupillary reaction to light. After a short latent period which varies between 0·06 and 0·25 of a second there may be either (1) rapid contraction and rapid dilatation, (2) rapid contraction and slow dilatation, (3) slow contraction and rapid dilatation, or (4) slow contraction and slow dilatation. Fatigue caused by repetition of the flash occurs only after repeated flashes in the normal, but much sooner in a patient with disease of the central nervous system. In all normal cases the reaction of the right and left eyes is similar, and the phases of the consensual reaction follow very closely after the direct. The psychic dilatation of the pupil is, of course, very liable to complicate the reaction to light and hence the necessity of making the tests of the direct and consensual reactions simultaneous. Any considerable deviation from the normal points to an abnormal state of the central nervous system, and as by far the most frequent cause of this in cases in which the diagnosis is obscure is syphilis, these pupillary abnormalities may sometimes afford invaluable help. Dr. Löwenstein's study of these pupillary symptoms in relation to syphilis is based on an investigation of more than 100 cases during the last ten years. Many of them came under his notice at a period of the disease when the Wassermann reaction was negative and the diagnosis was doubtful. In others the clinical symptoms left no doubt; most were in an intermediate stage when syphilis was suspected but not proved. He concludes that the obscure pupillary symptoms, amounting to much less than anything capable of ordinary clinical demonstration, such as the Argyll Robertson pupil, may if detected point to the diagnosis at a time early enough to give therapeutic measures an excellent chance.

Among the particular abnormalities that are discussed are: symptoms of fatigue occurring unduly early after repeated tests of the light reflex; definite differences between the response of the right and the left pupils to the light stimulus; marked differences between the direct and the consensual response; and differences in the latent period of the two pupils. Dr. Löwenstein has been able to study in cases of early tabes the stages of which the final one is the Argyll Robertson pupil, and also the curious phenomena which precede the so-called paradoxical pupil reaction.

Since there are so many varieties in the details of the pupillary reaction to light in normal individuals it is not claimed that these researches can ever provide an easy substitute for a complete clinical and pathological diagnosis of obscure cases either of early or latent syphilis, or of other diseases such as schizophrenia, but the method appears to afford an additional tool which is likely to be of increasing importance. Any neurologist who finds himself in Switzerland in the near future should take the opportunity of becoming acquainted with it.

History of St. Thomas's Hospital

By F. G. PARSONS, D.Sc., F.R.C.S., F.S.A. Vol. III. London: Methuen and Co., Ltd. 1936. Pp. 274. 10*s.* 6*d.*

THIS volume sets out the story of St. Thomas's Hospital in the nineteenth century and is preceded by a brief review of the activities and personnel of the institution during the previous hundred years. A description of the hospital, given in the opening pages, enables one to see that the bond of union between St. Thomas's Hospital, the senior of the two institutions which until some 80 years ago stood facing each other in Southwark, and Guy's Hospital, its neighbour, was a loose one and attended with many circumstances which made the separation of their activities wise and probable. The chapter dealing with the last 25 years of the "United Hospitals," as they were then termed, makes very amusing reading and one can gather that Wakley, the founder of THE LANCET, who was a medical student at the joint schools, had a firm foundation for many statements which in the early days of THE LANCET compelled him to defend various libel actions. The next section of the book, taking the hospital up to 1845, deals with a period of distinct depression in the medical school. Students became fewer and though eminent men had places on the staff they do not seem to have discharged their duties with much altruism. In 1857 St. Thomas's Hospital moved from the Borough to take up a temporary home in the Surrey Gardens, until in 1863, after negotiation with the Metropolitan Board of Works, a site was acquired upon the new Albert Embankment. The years which intervened between the removal of the hospital from its old home and the acquisition of its new palace must have been very trying ones for the authorities. What seems to have been the central building was a large and abandoned music hall "capable of being divided into three floors in such a way as to hold two hundred beds, as well as an out-patient department and dispensary." Mr. Parsons's description continues: "Other buildings there were, ranging from mere dens and cages to

the stately giraffe house which was used as a cholera ward, but for all some use was found. A pavilion made a chemical laboratory, and I have heard Dr. Stone say that the elephant house became the dissecting room. The other departments of the medical school were housed in a large iron shed which was specially built for the purpose. There was, I am happy to say, no attempt to lodge the resident staff in cages and aviaries since houses in the neighbourhood were rented for them; not could a place where the governors might meet be found; and so, after the last court meeting in the old hall on July 16th, 1862, the governors met for nine years in the Terminus Hotel at London Bridge Station, an hotel which was built upon property belonging to the hospital." Now comes an extraordinary fact. The way in which the hospital was conducted in these circumstances must have been highly creditable to the much tried authorities, for at this time it was selected by Florence Nightingale as the site of her training school for nurses.

The remainder of the work dealing with the close of the nineteenth century is without the piquancy of the earlier story, for we are now in an environment to a great extent familiar to all who know what is implied by hospital life. It contains interesting and accurate notes on the personalities of the medical and administrative staffs during the later phases dealt with in the history, and the names recorded should make every student of St. Thomas's Hospital proud of his school.

The Treatment of Asthma

By F. T. HARRINGTON, M.R.C.S., L.R.C.P. London: H. K. Lewis and Co., Ltd. 1936. Pp. 112. 6s.

THIS little book gives a full exposition of the general hygienic treatment of asthma. If the author had been content to stick to practical details and eschew theorising, it would have been admirable, for the advice is for the most part sound. As it is, there is much that will irritate the scientific mind. Asthma is attributed to toxæmia plus irritation, and the toxæmia is held to be the result of improper feeding. The nature of the toxin is not revealed, and it is hard to see what part food intoxication plays in hay-asthma or in occupational asthmas such as those of cotton operatives and similar workers. We know very little about the digestibility of foods, nor can we satisfactorily explain why attacks of asthma are induced by large meals and relieved by fasting. Empirically it has been found that certain food combinations are better tolerated by asthmatics than others. It is possible that these phenomena are due to mechanical or reflex disturbances comparable with the carotid sinus mechanism, and until we know more about their production it is unwise to dogmatise. When Dr. Harrington says, "It is of interest to note that when milk and meat are both included in the diet, histamine is produced and can be found in the sputum—histamine being a broncho-constrictor," he is hinting at a process which is almost inconceivable. In the practical part of the book the diet, the care of the digestive tract, the skin and the nose, appropriate clothing and exercise, are discussed in a sensible and helpful way. More space might have been devoted to the nervous factor and to asthma in childhood, and the brief mention of protein allergy, though calculated, is hardly wise.

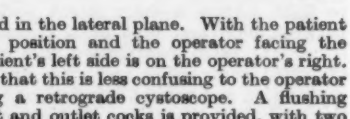
NEW INVENTIONS

A RETROGRADE CYSTOSCOPE

FOR some years I have felt the need of a cystoscope which would enable me to see the hypertrophied prostate, as it projects into the bladder, from more or less the same angle as in an open suprapubic prostatectomy. In the modern suprapubic operation the first step, once the bladder has been opened, is to insert retractors in order to inspect the neck of the bladder, when with good technique a clear view is obtained of the projecting middle or lateral lobes, or both. Existing retrograde instruments were found to be quite useless for this purpose. I have submitted three separate designs to Mr. Schranz, of the Genito-Urinary Co., during the course of two or three years. The first two he refused to manufacture as impracticable; the third he undertook to make, and it has proved very successful in giving the desired information. With this instrument and with some practice in its use, the projecting middle and lateral lobes are clearly seen, and with further experience the degree of projection is readily recognised. The view obtained, while not quite that seen at suprapubic prostatectomy, is sufficiently accurate for practical purposes.

I am indebted to Mr. Schranz for the following description of the instrument:—

The new irrigating retrograde cystoscope is 21 Charrière in size and of conventional length. It is fitted with a double reflecting prism and lens system, which deflects the main axis through approximately 135°, so that the shaft of the instrument comes into view at the lower edge of the field. The image is corrected in a vertical plane, but inverted in the lateral plane. With the patient in the lithotomy position and the operator facing the perineum, the patient's left side is on the operator's right. It has been found that this is less confusing to the operator when he is using a retrograde cystoscope. A flushing channel with inlet and outlet cocks is provided, with two apertures at the distal end. One of these is immediately in front of the objective and is fitted with a baffle which sends the stream backwards towards the internal sphincter. The other aperture is situated at the heel of the instrument.



With this instrument one can obtain a true retrograde view of the prostate very similar to that seen at open prostatectomy. It is hoped that with its use we may be better able to select cases for suprapubic prostatectomy or for resection, and may be in a position to study more exactly the relationship between frequency and intravesical projection of one or more lobes. Apart from its use with the hypertrophied prostate, the cystoscope has proved exceedingly useful in locating papillomata at the neck of the bladder. Using the present optical system, I hope in the near future to develop an operating instrument for dealing with these notoriously difficult tumours. I also hope to improve the water channels of the present examining instrument and to lessen the sharpness of the angle at the heel. In actual practice, however, the instrument has been found quite easy to pass and the present water channels are quite adequate for the clean or reasonably clean case.

T. J. D. LANE, M.D. Dub.

THE LANCET

LONDON: SATURDAY, APRIL 4, 1936

UNSCRUPULOUS ADVERTISING

IT is not only the so-called trade-union of doctors which will be disappointed that the House of Commons failed to give a second reading to the Medicines and Surgical Appliances (Advertisement) Bill. The measure was blessed with an unusual volume of approval; its scope was carefully limited and its concessions were already substantial. It would, with the goodwill of organised newspaper interests, have prohibited a cruel and delusive form of advertising—the offer of positive cures for cancer, diabetes, Bright's disease and other named ailments, or for conditions such as amenorrhœa, hernia, blindness, and structural or organic defect of the ear. It would have forbidden the dangerous advertisements which offer to promote the miscarriage of women. It would have stopped the publishing of invitations to diagnose or treat the specified diseases by correspondence. All reasonable safeguards for bona-fide practice and treatment were already embodied in the Bill; had any others been deemed desirable, they could have been added in the usual process of improving proposals by amendment. But the legislative machine requires a quorum. After two hours of discussion on Friday, March 27th, the second reading was lost by default. There are 615 members of the House of Commons, but fewer than forty were present at 1.16 P.M. when the House was counted out. Sir ARNOLD WILSON, who moved the rejection of the Bill, agreed that some control of the vast development of advertising in relation to remedies and treatments was essential, that enormous frauds were perpetrated on the public, and that the loathsome atmosphere of fear was being created by a thousand advertisements. He had no objection to legislation; indeed, he promised a respectful reception if the Ministry of Health would produce official proposals. But he denied himself the opportunity of helping, here and now, to fashion an effective remedy. The opponents of the Bill seemed satisfied that its proposals were simply another obscurantist device for persecuting the unregistered practitioner and the herbalist, and for strengthening what is oddly described as the monopoly of orthodox medicine. The names of Sir Herbert Baker, Dr. Axham, and Mr. Spahlinger flitted across the floor of the House. The wastage of life through the ravages of the named diseases was deplored, of course; but the fact that medical research has not yet found a remedy for a disease was apparently deemed a reason for allowing quacks to guarantee cures by advertisement and correspondence.

The inadequacy of our existing law was thoroughly exposed in the convincing report of the Select Committee of the House of Commons on Patent Medicines, published in 1914 and reproduced as a special supplement to THE LANCET of Jan. 10th, 1925. The Venereal Disease Act of 1917, which deals within its own limited scope with the very scandal which we are discussing, was not yet passed when that report appeared. Otherwise the legal position to-day stands much as it stood in 1914. The Dangerous Drugs Acts and the Pharmacy and Poisons Act, operated by the Home Office, hardly touch the particular problem. The Food and Drugs Act makes it an offence to sell an article under a label which contains a false description, but it goes out of its way to create a special exemption for a proprietary or patent medicine. Section 88 of the Larceny Act makes it a crime to obtain money by false pretences with intent to defraud; but the Assistant Director of Public Prosecutions had to explain to the Select Committee that charges under Section 88 were mostly useless because first it was generally impossible to prove wilful misstatement against the retailer, secondly, the defendant would probably produce witnesses who said the advertised drug had been beneficial to them, and thirdly, in grave cases (e.g., where drugs are sold to procure abortion) the victims of the fraud were not likely to come forward willingly. British law cannot prevent anybody from procuring any drug or advertising any mixture, whether potent or therapeutically valueless, provided it is not a poison or a narcotic, or a remedy for venereal disease, advertising it as a cure for any ailment, recommending it by bogus testimonials and the signed praise of fictitious physicians, and selling it under any name for any sum which a gullible public will pay. He may have to pay a small stamp duty, but even the Government stamp has been used to persuade the purchaser that it represents some kind of guarantee. Other countries have laws which take better care of their citizens. When Lord ASTOR introduced his Proprietary Medicines Bill in the House of Lords in 1920, he quoted the instance of an American, said to have made £60,000 by a campaign of selling in England a vibratory cure for various ailments, who, for just the same procedure in France, was sentenced in Paris to three years' imprisonment and was fined £120.

To return to the House of Commons, it would be imprudent as well as useless to scold at members; we want them to make amends some day soon. The recent Bill was unlucky in setting to sea on a Friday. Well as the private members in charge pleaded for it, it remained a private member's Bill. Gilbert's sentry sang of our legislators voting just as their leaders tell them to. There were no directions from above last Friday afternoon; it was nobody's business to "Keep a House"; the whips which cracked most invitingly were the whips at Aintree. The publication of the Select Committee's report unfortunately clashed with the World War in August, 1914. Mr. DUCKWORTH'S excellent Bill unfortunately clashed with the Grand National in March, 1936. Let us not despair. The history of Parliament suggests that all reforms, great or small, take time. Perhaps

the Minister of Health will take Sir ARNOLD WILSON'S hint and introduce an official Bill. Or perhaps some medical officer will persuade one of our great municipalities to attempt legislation in advance of the backward standard of the rest of the country. Or perhaps again, since progress by catastrophe is a national habit, some pitiful tragedy of suffering and disillusionment will stir public opinion to put an end to this sinister union of falsehood and profiteering.

ŒSTRIN, TUMOURS, AND THE PITUITARY

WE are now provided with fresh evidence on two current and important problems—the connexion between tumour growth and hormones, and the action of œstrin on the pituitary. This evidence suggests that (1) the female sex hormone, (2) the central gland of the endocrine system, and (3) the phenomenon of tumour growth must be thought of as closely related. The description by Drs. CRAMER and HORNING of the experimental production of pituitary tumours by œstrin, published in our issue of Feb. 1st, is this week followed by two papers in which Prof. B. ZONDEK and Prof. COLLIP and his colleagues record similar observations, all made independently.

Much investigation and speculation have been called forth by the recognition that œstrin is chemically related, though not intimately, to the carcinogens, and by the belief that substances with intense activity in promoting growth in certain tissues must bear some relation to the factors governing the growth of tumours. Œstrin has been found to be carcinogenic only in a special sense.[1] Unlike carcinogenic tars, or the synthetic carcinogenic hydrocarbons, it does not induce tumours at the site of application on the skin; the tissue which reacts to persistent overdosage is a tissue which possesses a specific physiological sensitiveness; and there must probably be an accessory activating factor. In LACASSAGNE'S experiments, and their repetition by CRAMER and HORNING, a race of mice was used with a high incidence of spontaneous mammary tumours in the females. Prolonged treatment with œstrin induces mammary development in the male, followed by growth of tumours, but, paradoxically, inhibits tumour development in the female. CRAMER and HORNING consider that either the female organism is able to destroy the excess of œstrin, or the carcinomatous response of the mammary epithelium depends on an indirect and not on a direct interaction between œstrin and the cells. The possibility immediately suggests itself that an indirect action might take place through the anterior pituitary, which is already established as an intermediary in some of the extrasexual effects of high doses of œstrin.[2] The influence of the pituitary hormones on tumours has been the subject of work carried out in Germany and America[3] which has shown conclusively the importance of this effect, but has not yet reached the stage at which all the factors involved can be clearly distinguished. A group of American workers[4] claim to have observed an effect in the reverse direction in mice with spontaneous mammary tumours. These are associated with loss of gonadotropic activity of the pituitary and consequent atrophy of the gonads. The investigation of the direct œstrin-pituitary interrelation has made a striking advance with the latest observations of the effect of long-administered, large amounts of œstrin on the pituitary itself, and its bearing on the problem of malignant growths must now be worked out. CRAMER and HORNING found in three mice out of twelve a condition of hæmorrhagic chromophobe adenoma of the anterior lobe of the pituitary, and believe that they have produced experimentally the syndrome of Simmonds's disease. In the majority of the other animals the glands were macroscopically enlarged. The papers we publish this week record comparable observations in rats, but there are certain inconsistencies in the results which remain to be cleared up. Prof. ZONDEK observed simple increase in size of the pituitary only in male rats, whilst his single example of a pituitary tumour occurred in a female. On the other hand, Prof. COLLIP and his colleagues found enlargement of the pituitary, with occasional cavernous adenomata of the pituitary, in both males and castrated females, and refer to observations not published in detail showing that female rats are more susceptible to pituitary hypertrophy. It is to be hoped that systematic work will clear up discrepancies due to different experimental conditions. There is no doubt that these investigations are of first importance, for they will surely lead on the one hand to a better understanding of the ætiology of tumours, and on the other to a clearer view of the therapeutic possibilities and limitations of œstrin.

Attention may be directed to one point. It is only after isolation and chemical characterisation of the œstrogens and carcinogens that rapid advance has been possible with their biological investigation. The experimental pathologist must now ask the chemist to take on the admittedly harder job of clearing up the chemistry of the pituitary hormones.

CANCER OF THE STOMACH

DOES early diagnosis of gastric carcinoma hold out any good hope of cure? Is a really early diagnosis possible? To these two questions physicians and surgeons in New York attempt an answer in a symposium published in the February issue of the *American Journal of Surgery*. The main points made by the contributors are that radiological methods have rendered accurate diagnosis fairly certain; that we must be prepared to suspect the disease on the appearance of such equivocal symptoms as "gastric consciousness" and abnormal tiredness after an ordinary day's work; that there are now a limited number of surgeons capable of performing gastric resection with a reasonably good chance of the patient's

[1] See THE LANCET, Feb. 8th, 1936, p. 324.
[2] Ibid., Jan. 4th, 1936, p. 7.
[3] Cf. a brief summary by H. Druckrey in Naunyn-Schmiedebergs Arch. f. exp. Path. u. Pharmak., 1936, clxxx., 367.
[4] Allen, E., Diddle, A. W., Strong, L. C., Burford, T. H., and Gardner, W. U.: Amer. Jour. Cancer, 1935, xxv., 291.

surviving the operation; and that a few of the cases in which the growth is fungating (not infiltrating) stand a chance of five-year or ten-year cure.

Dr. JAMES EWING reports that a patient with one of the earliest gastric growths he has ever seen died of general abdominal carcinomatosis within sixteen months of gastric resection. What then are we to consider an "early carcinoma"? Dr. SEALE HARRIS quotes an opinion of MCCARTY's that "no cancer in any part of the body is early if larger than a half a centimetre in diameter." In a cavity so big as the stomach there seems a poor chance of such a lesion being recognised. All the *typical* symptoms of cancer of the stomach are referable to ulceration, infection of the growth, or infiltration, causing obstruction of the lumen; and all these complications occur late. The idea that radiology will give earlier and earlier information is over-optimistic; but on the positive side Dr. GREGORY COLE points out that ulcerating lesions seen on the greater curvature are almost certainly neoplasms, never simple ulcers. An infiltrating growth attacks first the muscularis mucosa, and the effect of this is to straighten out the rugæ of the mucosa. The absence of rugæ is definitely recognisable in the barium-meal radiogram, and, combined with a localised obstruction of peristalsis and a lack of pliability of the stomach wall, has justified a diagnosis of cancer in cases in which the growth has caused no conspicuous deformity or obstruction of the cavity of the stomach. HARRIS assesses the value of the available laboratory tests, but finds none of any real help in the diagnosis; and the conclusion of the matter lies in the remark that a patient with stomach symptoms should ask not for a bottle of medicine but for an X ray examination. Abdominal discomfort rather than pain is generally held typical of early carcinoma; but, contrary to certain teaching, HARRIS considers that periodicity of symptoms is not against the diagnosis. The pain he describes as being unrelated to meals but exaggerated by eating; and as usually occurring at night.

Figures are presented showing the results of treatment in 718 cases of cancer of the stomach in one hospital, of which 430 had an operation of one kind or another, most often merely exploratory or palliative. In 98 cases (13·6 per cent.) resection was carried out, and of these there were 65 in which the patient survived the operation. Ten were living without sign of recurrence after periods ranging from eight to forty-eight months; 9 were living at the end of five years; and 7 at the end of ten. The possibilities of radiotherapy are limited, partly by the inaccessibility of the organ, and partly by the fact that many gastric tumours are only slightly radiosensitive. T. PACK and ISABEL M. SCHARNAGEL, who report on this method of treatment, are not in favour of using it either as a prelude to operation or as a prophylactic against recurrence after resection. Of 60 patients regarded as inoperable who were treated either with radium, X rays, or both, 4 did really well and 6 were relieved to the extent of being able to resume work and enjoy life. The tumours occurring in the proximal half of the stomach are, it is stated, those most likely to be radiosensitive; but they are also the least accessible to implantation of radium. A discussion at the end of the symposium raises the question whether more harm is done to the general cause of cancer cure by attempting operation and irradiation in advanced cases than would be done by allowing the patients to go home to die. It is suggested that deaths in hospital lead to prejudice against the treatment, and are not understood as being inevitable at the stage when the patient reaches the surgeon. This means that an important lesson is not learnt, and that more hopeful cases are deterred from seeking a remedy.

ANNOTATIONS

NEW STATUTES FOR OLD

MANY of the complaints against the bureaucracy of Whitehall arise from the confused state of a mass of laws for the creation and administration of social services—laws which involve interference with older ideas of individualism and which, while demanding the careful attention of the average citizen, are made more puzzling by indiscriminate and frequent amendment. The remedy is a periodical spring-cleaning of the statute book, and in this respect the Ministry of Health is to be praised for its activity. Having rewritten the poor-law enactments in 1927 and 1930 and the series of Local Government Acts in 1933, the Ministry has now produced the draft of a new code of public health which, when the Bill becomes an Act, will at last replace the Public Health Act of 1875 and its subsequent amendments. Not resting content with this achievement, the Ministry has also recently produced a Bill to consolidate the law of national health insurance (previously consolidated in 1924), another Bill to consolidate the law of widows', orphans', and old age contributory pensions (as yet hardly eleven years old), and yet another for the law of housing (rewritten as recently as 1925). To these may be added two others, with which the Ministry is less immediately concerned—a consolidating Public Health (London) Bill, which is longer even than the proposed Public Health Bill for England outside London, and a Bill to consolidate the law of non-contributory old age pensions. These six Bills, all likely to be passed before the summer holidays, will place upon the statute book nearly nine hundred pages of tidy legislation. This tidying process is not an occasion for altering the nature of the law; alteration means controversy; a consolidation Bill enjoys exceptional facilities in passing through Parliament upon the condition that the new statutes merely replace the old. To attempt to introduce substantial amendments is to run the risk of wrecking the Bill. When it is safely placed upon the statute book, the task of amendment will be so much the easier. The changes made by the Local Government Act of 1929 could hardly have been formulated if the Poor Law Acts had not first been rewritten in simple and orderly form. The efforts of the Ministry of Health deserve the reward of success; they should inspire other departments to a like persistence in making plain the riddles of the law.

THE RISKS OF BREECH DELIVERY

DURING the years 1913 to 1934 inclusive 30,655 patients were delivered on the house service of the Boston Lying-in Hospital, Massachusetts, and of these 1219 were delivered, through the pelvis, of 1242 infants by the primary breech mechanism. Dr. Thomas R. Goethals [1] has used this extensive material for an inquiry into the risk to the infant in breech delivery, which, it will be observed, occurred in a fraction under 4 per cent. of all patients. Of the 1242 infants thus delivered 922, or 74·3 per cent., left the hospital alive, 13·1 per cent. were stillborn, and 12·6 per cent. died in the neonatal period. Comparable percentages for all deliveries over 1924–34 were 6·2 stillbirths and 2·2 neonatal deaths, and this shows the big increase in risk to which the infant is exposed by the circumstance of breech delivery. A part of this high mortality is due to the fact that in over a fifth of the breech deliveries either the pregnancy was pathological—with such complications as pre-eclamptic toxæmia, eclampsia, nephritis, syphilis, or diabetes—or labour was complicated by such conditions as placenta prævia, ablatio placentæ, or prolapse of the cord. The total mortality (stillbirths plus neonatal deaths) was in these cases as high as 52 per cent. compared with 18·5 per cent. in the uncomplicated breech deliveries. It might be argued that the risk of breech delivery per se should be assessed only from cases in which labour is uncomplicated, but it should be borne in mind that this series shows the incidence of placenta prævia, ablatio placentæ, and prolapse of the cord to be respectively three, five, and five times as frequently associated with breech presentation as with all types of delivery. When from the uncomplicated breech deliveries those cases are excluded which resulted in the birth of macerated and grossly malformed infants and the remainder are taken as a standard for uncomplicated breech delivery, the total mortality was 13·6 per cent., this figure being derived from a rate of 53·6 per cent. for the premature, 10 per cent. for the immature, and 6·9 per cent. for mature infants. This last figure of 6·9 per cent.—based upon 691 deliveries—Goethals takes to represent "the risk to the living, undeformed, full term infant *in utero* who is destined to be born by pelvic breech delivery in the absence of pathological pregnancy on the part of the mother, and of hæmorrhagia and other accidents of labor due to abnormalities of the placenta or of the umbilical cord." Prematurity was relatively common and contributed considerably to the mortality. Goethals takes the birth weight to the best standard and classifies an infant weighing less than 5 pounds at birth as premature, one weighing between 5 and 6 pounds as immature, and one weighing over 6 pounds as mature. In this classification approximately 20 per cent. of the breech deliveries were of premature infants, a figure which is more than three times as high as the 6 per cent. incidence of prematurity in the hospital deliveries at large. In mortality the breech deliveries did not differ from the general series until a weight of about 3 pounds is reached, but above that weight the breech deliveries suffer a substantially higher death-rate. In the breech-delivered the mortality is lowest with infants of 7½–8 pounds birth weight, and rises steeply on either side to 100 per cent. for infants of under 2 pounds, and to 33 per cent. for those over 10 pounds, the mortality of the latter being frequently due to maceration, malformation, or to intercurrent causes rather than to an increased risk from mechanical causes.

Dr. Goethals can take satisfaction in concluding his statistical survey from the fact that in this series the mortality-rate among mature infants born by breech delivery has declined very substantially over the years of his review. His figures are set out clearly and fully and should prove helpful both in themselves and as a standard for comparison.

[1] Surg., Gyn., and Obst., March, 1936, p. 525.

JHIN JHINIA

THE *Indian Medical Gazette* for February publishes a lively account of a new "disease" which appeared last Christmas in Calcutta. There was one constant symptom—namely, a tingling sensation in the sole of one or both feet, usually in the big toe. This symptom—*jhin-jhin* in Bengali means tingling—gave the disease its name. Other symptoms were a feeling of pressure in the head with or without headache and a violent trembling of the whole body. The appearance of trembling was often delayed till treatment had been administered. According to local tradition, the disease was caused by a perverse tendency of the blood to desert the extremities and to fly to the head. The object of treatment was to reverse this process. The patient, male, or more often female, was accordingly tied to a post to prevent her lying down, and cold water was then poured over the head. Pneumonia was an occasionally fatal complication of the illness or, possibly, a sequela of treatment. Other grave sequelæ were meningitis, apoplexy, and fractured skull. The disease spread rapidly and seemed usually to attack persons in crowded places. Though it was sometimes misdiagnosed as encephalitis, meningitis, or Landry's ascending paralysis, complete investigation of cases admitted to the large hospitals in Calcutta revealed no organic lesions. The condition is therefore almost certainly a neuromimesis probably the result of mass suggestion among an illiterate populace. Opportunist "healers" were not slow to exploit the possibilities of the situation, and quack remedies and prophylactics found a ready sale. Local practitioners and health authorities are blamed, perhaps unfairly, for taking too serious a view of the "epidemic" in its early stages and the scare-mongering press for adding fuel to the fire. One peaceable citizen of Calcutta was seized by four men who accused him of having jhinjhinia, soused him under a tap and departed with his wallet containing a hundred rupees. It seems a heavy price to pay for advice unsought.

FILARIAL MIGRATION IN THE MOSQUITO

AT a laboratory meeting of the Royal Society of Tropical Medicine and Hygiene held at the Royal Army Medical College, Millbank, on March 19th, there was set out a series of microscope slides and photomicrographs prepared by Prof. F. W. O'Connor and Mr. Harry Beatty in the laboratory of Dr. James Knott, chief medical officer in the Virgin Islands. They illustrated what is believed to be a new observation regarding the behaviour of the larvæ of *Wuchereria bancrofti* in the mosquito *Culex fatigans*. It has been held hitherto that these larvæ force their way through the wall of the posterior, or saccular, part of the mid-gut (usually called the stomach) which lies in the abdomen of the mosquito, and that from there they make their way forward to the thoracic muscles where they undergo that development which is necessary before they again become infective for man. In these new investigations this was the

behaviour of the larvæ for the first ten hours after the infective blood feed. But at the end of that interval they began to collect at the anterior end of the stomach, and shortly afterwards they passed into the anterior cylindrical portion of the mid-gut. Their forward transport went on, partly at least as the result of reversed peristalsis, till they were first distributed over the whole of this cylinder, and later, by the end of sixteen hours after the infective feed, had collected together to form a writhing mass just behind the valve which stops progress into the fore-gut. In one of the slides which was set out could be seen the first of two larvæ which was surprised in the act of forcing a passage through the wall of this anterior portion of the mid-gut into the thorax.

In another series of experiments O'Connor had shut up fed mosquitoes in glass boxes built up of microscope slides held together with plasticine, one mosquito being put into each box. The boxes were afterwards dismantled and the collected droppings examined. They showed a few healthy and dead microfilariæ and their sheaths. But if these larger objects can be passed by mosquitoes, there is little doubt that blood corpuscles and plasma are passed much more freely. Moreover it is the case with blood-suckers so different as fleas and hookworms that passage of blood elements begins while the feed is still going on, so that it is reasonable to suggest that it may be found to do so in these mosquitoes if they are allowed to go on feeding undisturbed. In such conditions the number of microfilariæ which a mosquito will swallow and retain at one feed will be larger than the number of them contained in that quantity of blood which will fill its stomach once, and this quantity will not measure the degree of infection which the insect risks. O'Connor's investigations continue to shed needed light on filarial infection and to show that each fresh advance brings into view fresh problems calling for solution.

HYSTEROSCOPY

THE technique and possibilities of hysteroscopy are described in an interesting paper [1] by Prof. Hamant and Dr. Durand. The first account of this procedure was given by Aubinais in 1864 and since that time various methods have been proposed though they have usually been received with little enthusiasm. Hamant recommends the use of the instrument designed by de Segond, which, in principle, is constructed like the urethroscope. Contra-indications to hysteroscopy are few and obvious; the operation should not be attempted when there is inflammation in the pelvis, pregnancy, or profuse uterine bleeding. It may be done under general or local anæsthesia, and with the patient in the lithotomy position a full aseptic technique is used. Sterile water is used to wash out the uterus and endoscopy is performed when the uterine cavity is distended by a pressure of about 650 mm. of water. The work of Schroeder has shown that water does not pass from the uterus to the Fallopian tubes at a pressure of 950 mm. of water, or 40–45 mm. of mercury. Hamant advises that the usual biopsy should always accompany hysteroscopy. That the method has considerable value as an aid to diagnosis is proved beyond dispute by his excellent illustrations. Whereas the curette is very useful as an aid to diagnosis, no one will deny that this instrument can fail upon occasion to detect a small malignant ulcer, or to remove a small fragment of chorionic tissue or even a large endometrial polyp.

[1] Hamant, A., and Durand, E.: Rev. franç. de gyn. et d'obst., January, 1936, p. 1.

PROBLEMS OF THE FAMILY

MUCH attention has been devoted to population problems in recent years. In a special memorandum (No. 40) published by the London and Cambridge Economic Service,[1] Dr. Enid Charles furnishes us with three estimates of the future size of our population depending upon three hypotheses: (1) that fertility- and mortality-rates from 1935 onwards will continue to be the same as they were in 1933, this being the most recent year for which the necessary data are available; (2) that the fall in fertility- and mortality-rates which has occurred in recent years will be continued into the future; and (3) that fertility-rates will rise to the level of 1931 (i.e., roughly 10 per cent. higher than in 1933), while mortality continues to fall. While it is unlikely that the actual movement of our population will coincide exactly with any of these three estimates, it is probable that the second will be most closely realised by future events. What then would be the effect upon our population if recent trends of birth- and death-rates were to be continued into the future? Briefly, the population will reach a maximum of about 41 million in the year 1940, after which it will begin to shrink. The decline will, at first, be slow. By the year 1950 the population would be but little smaller than it is to-day, but the age composition would be very different. There would be relatively more old people and fewer children. By the year 1965, a generation hence, the population would have fallen to 36 millions; by 1975 to 31 millions; and by the year 2000 to 17 millions. The decline would gain momentum each year, and a hundred years hence, in the year 2035, the population would have dwindled to about 4½ millions—a figure rather smaller than the present population of Greater London. In the last year the trends of previous years have been slightly reversed. The birth-rate has gone up by a fraction of a point in response, it is supposed, to an increased marriage-rate fostered by the recent improvement in economic conditions. What is the birth-rate going to do in the next few years? At its present level, it appears to have fallen to about 75 per cent. of replacement rate. Dr. Charles calculates that the net reproduction rate for 1933 is 0·734; if this rate continues below unity, we are confronted with an inevitable decline in the population. What are the prospects of its being raised?

The figures in Dr. Charles's numerous tables and the direction of the curves on her carefully prepared charts depend upon intimate events occurring within the family. A comprehensive and detailed study of these changes was published in 1934 by Prof. K. Folsom [2] in a book which, in his words, "attempts to weave cultural anthropology, individual psychology, social psychology, history, sociology, economics, and psychiatry into a unitary *science of the family*." In this ambitious scheme the family unit is examined from every standpoint and the conclusion is reached that its future evolution will be determined by two major groups of cultural changes. These are our mechanical inventions whose general social effect is increased machinery, urbanisation, and higher material

[1] Obtainable from the London School of Economics, Houghton-street, Aldwych, W.C.

[2] The Family—its Sociology and Social Psychiatry. By Joseph Kirk Folsom, Professor of Sociology, Vassar College. New York: John Wiley and Sons; London: Chapman and Hall. Pp. 604. 25*s*.

standards of living, and our discoveries in biological and psychological sciences which, by displacing the theology of the Victorian era, have led to an unprecedented individuation of the personality. Folsom prophesies that, in the comparatively near future, reproduction will, in civilised countries, come to be completely and universally controlled. The solution of the other problems associated with the future of the family, however, will depend upon our cultural ideology, upon the possibility of international peace and of economic stability. Civilised countries may evolve in the direction of liberalism, which places its highest value upon the development of the individual personality; or it may take what he calls an anti-liberal direction as it has done in Japan and in those European countries which have adopted fascism. He is optimistic about the future of the family if liberalism finally prevails, as he hopes it will. Chapters follow on the cultural history and geography of the family, the effect on it of social change and family mass readjustments, and individual adjustments as they affect family problems. Perhaps the most interesting part of the book is the analysis of how the four essential problems relating to the control of reproduction, the economic foundation of the family, the mate-to-mate relationship, and the parent-to-child relationship are resolved in the cultural organisations of different races and countries.

PAIN IN PSYCHOPATHOLOGICAL CONDITIONS

PHYSICAL pain is like fear in that many of us have felt it only in its milder forms, and, if we are doctors, learn to contemplate it in others with a detachment that would be callous if it was not associated with confidence of our ability at least to relieve it by anodynes if not to cure it. We are apt, moreover, to think of physical pain as a relatively simple matter of sensations and nerve tracts which can be understood on physical lines. The psychogenic production of pain and the varying sensitivity to it in different individuals, or in different states of mind in the same individual, are among the many interesting aspects of the subject on which Dr. Macdonald Critchley touched in the twenty-fourth Long Fox memorial lecture.[1] It is evident from his exposition that the questions raised by pain are complex and bring up fundamental issues in psychopathology. As he points out, the disputes as to the "reality" of psychogenic pain are usually sterile exercises in casuistry, but the elucidation of the mechanism of such pain is none the less a necessary task. Dr. Critchley mentions a patient with causalgia, repeatedly and fruitlessly mutilated by the surgeons, even to chordotomy, who might well serve as an object lesson in the need for further study of the neurological and psychological basis of pain. It is curious that suicide is seldom resorted to as an escape from continual pain. Dr. Critchley remarks on a fact which is the converse of this—viz., that depressed people, in whom suicide is frequent, often show striking indifference to pain. It is, however, difficult to be sure whether this apparent indifference is not a stoicism that masks a perception as acute as that of more normally demonstrative people. There are many ways of reacting to pain, as J. D. Achelis[2] has pointed out. The depressive with his ideas of self-reproach may bear without complaint, may even welcome, bodily pains: many such patients say how gladly they would exchange their mental torment for some corporeal distress. Some of them also have morbid proclivities, often masochistic in nature, which influence their conduct. The behaviour of depressive patients, especially when operations or painful dressings are necessary, does not bear out the view that their sensitivity to pain is lowered, even though the unpleasantness of the affect accompanying the pain is swallowed up in their larger misery. The interesting researches of H. Piéron[3] bear on this point. J. Schröder,[4] moreover, reported instances of manic-depressive psychoses in which pain played a large part. It is not necessary that pain should be consciously experienced whenever it is acutely felt. Thus in alcoholics, with deep clouding of consciousness, L. Bender and P. Schilder[5] have observed an increased sensitivity to pain, so that they conclude (paradoxically) that the somatic apparatus of consciousness has a protecting influence against pain: when consciousness is clouded and cortical activity greatly lessened, pain seems to sweep over the whole body instead of being localised. It would be an advance of great profit to psychiatry as well as to neurology if the nexus between cortex and subcortical centres, especially thalamus, could be further elucidated in its psychological implications, such as this problem of pain.

[1] Bristol Medico-Chir. Journal, 1935, lii., 191.
[2] Zeits. f. Psychol., 1924, lvi., 31.

MORE TUMOURS OF THE ISLETS OF LANGERHANS

FIVE cases of severe spontaneous hypoglycæmia came under the care of the Neurological Institute in New York within 16 months, and in all of them tumours of the pancreatic islets were found and removed and the patients restored to health. The physicians concerned have reported them at length.[6] The clinical picture is distinctive and ought to be recognisable by a doctor of average experience who has read about it and not forgotten what he has read. The patients were adults, suffering for months or years from paroxysmal attacks of mental and physical disturbance lasting hours or even days. They sometimes became unconscious, often just confused, restless, irritable, or negativistic; they showed superfluous movements, tic-like, semi-purposeful, or bizarre; and objective neurological signs such as diplopia, nystagmus, and extensor plantar responses were sometimes noted. Profuse sweating characterised them all. Attacks often came on when the patient was fasting, and were alleviated by taking of food. Blood-sugar levels between 30 and 50 mg. per 100 c.cm. were usually found, and intravenous glucose gave temporary relief. While it seems clear that the symptoms are due to an excess of insulin activity, their mechanism is still obscure. The relation between blood-sugar level and cerebral disturbance is by no means constant, either from patient to patient, or from time to time in a given patient, and it is difficult to understand why the attacks should be paroxysmal with long intervals of comparative freedom.

The surgeons have also published their account of these cases,[7] prefaced by an admirably concise historical review. They find now 31 recorded examples of spontaneous hypoglycæmia with pancreatic tumours, nearly always adenomata and only rarely carcinomata of the islets. They also find 18 cases where an expected tumour was not found.

[3] Rev. gén. des sciences, 1923, xxxiv., 365.
[4] Zentralbl. f. Nervenheilk. u. Psych., 1907, xxx., 933.
[5] Arch. Neurol. and Psychiat., 1933, xxix., 990.
[6] Feinler, L., Soltz, S. E., and Hann, P.: Bull. Neurol. Inst. New York, 1935, iv., 310.
[7] Whipple, A. O., and Frantz, V. K.: Ann. of Surg., 1935, ci., 1299.

and on the other hand 31 cases of such tumours found incidentally post mortem in the absence of suggestive symptoms. Some useful recommendations are made as to procedure in suspected cases. The diagnosis should be made in the first place from the history and the demonstration of hypoglycæmia; if it is supported by the occurrence of symptoms during 24 hours' starvation and their relief with intravenous glucose, then operation is advised. Spinal anæsthesia, a transverse incision, and complete exposure of the pancreas are recommended. The tumour is likely to be a purplish nodule half an inch or less in diameter, on the anterior or the posterior aspect of the pancreas, and there may be two of them. Body and tail are commoner sites than the head. Shelling out the tumour is usually easy, but if no tumour is found excision of two-thirds of the pancreas is to be undertaken, and that is naturally more difficult. Tying the splenic artery and removing the spleen as well may facilitate it. This large partial pancreatectomy has relieved symptoms in some recent cases, but even the most eager surgeon will still welcome the finding of one or two well-defined adenomata, and the almost certain prospect of cure that their removal will bring. It may be that these cases are commoner than we think; it rests with the general practitioner and the physician to recognise them and give them the chance to be treated.

DIAGNOSIS AND PROGNOSIS IN POLIOMYELITIS

RECENT outbreaks of poliomyelitis in Denmark have led to some interesting studies of this disease by the Danes, whose public health administration is singularly well fitted for the task. Dr. N. I. Nissen[8] gives an account of 132 cases of poliomyelitis treated in the Blegdam Fever Hospital of Copenhagen during 1934. During the latter half of that year no fewer than 316 patients were admitted to the hospital with the diagnosis or query of acute anterior poliomyelitis, but only in 113 of them could this diagnosis be maintained. It is obvious from these figures that it is very difficult to distinguish early poliomyelitis from the many other ailments which may simulate it. In as many as 56 of Nissen's cases the diagnosis was reduced to angina faucium, and this was the final diagnosis in another group of 66 patients, although there was a suspicion of spinal rigidity in the clinical picture. In 21 cases the diagnosis was reduced to that of acute gastro-enteritis, while 16 patients were found to be suffering from influenza with conspicuous catarrhal symptoms, and 10 from pneumonia. Various other diseases such as arthritis, tuberculous meningitis, and bronchitis masqueraded in the early stages as poliomyelitis. No wonder, therefore, that Nissen writes: "Often it has been very difficult, and sometimes altogether impossible, to make the differential diagnosis between mild and abortive cases of poliomyelitis and, in particular, the numerous mild cases of angina and fever that are admitted here to the Blegdam Hospital throughout the year." It has been found that in Denmark, as in several other countries, there has been a definite and regular upward shift in the age-distribution of the disease. No similar shift in the age-distribution of diphtheria, scarlatina, measles, and influenza has been observed during the past fifteen years, and Dr. Nissen is at a loss to account for it. With regard to the prognosis in cases in which paralyses have not yet occurred, he has sought by a statistical analysis to discover signs which would enable the clinician to forecast the subsequent course. Though he can find no one sign or symptom of uniformly reliable prognostic value, he has come to the conclusion that paralyses are most probable when the illness is characterised early by drowsiness, restlessness, shivering, tremor, excessive sweating, and muscular tenderness. It is also of bad omen when the disease runs a diphasic course—i.e., one with a distinct primary febrile reaction followed by a symptom-free latent period which in its turn gives place to meningeal signs.

[8] Acta med. Scand., 1936, vol. lxxxviii., Fasc. I.

ADDENDUM TO THE B.P 1932

THE General Medical Council, on the recommendation of the British Pharmacopœia Commission, have arranged for the publication during the present year of an addendum to the British Pharmacopœia of 1932. General revision has led to several alterations in detail of description and method, and in addition the addendum will contain monographs on numerous new remedies introduced during the last four years. In order that the addendum may have the advantage of public criticism before it is officially adopted, the principal recommendations and emendations suggested by the various committees in charge of revision are now being circulated in pamphlet form. The clinical committee regrets that the law of patents has prevented the inclusion of certain drugs, and this no doubt explains the omission of such substances as the organic mercurial diuretics. Among the more important drugs recommended for description are liquor iodi aquosus ("Lugol's iodine"), oleum iodisatum, argentoproteinum, sodii thiosulphas, tryparsamidum, histaminæ phosphas acidus and ergometrina. Five new antitoxic sera are included—namely, gas gangrene (œdematiens), gas gangrene (vibrion septique), staphylococcal and pneumococcal (Types I. and II.). Calciferol (vitamin D) is to replace irradiated ergosterol, and ascorbic acid (vitamin C) is described. A standardised preparation of vitamin B_1 is to be included. The pamphlet merits careful perusal by all interested in pharmacology or therapeutics.

CONSTITUTION AND DISEASE

Two further studies on constitution in relation to disease have lately been published by Prof. Raymond Pearl and his colleagues working in the department of biology of the School of Hygiene and Public Health, Johns Hopkins University. The first comprises a statistical analysis by Antonio Ciocco of data concerning 126 white women with heart disease[1] and is a sequel to Pearl and Ciocco's analogous study on white men.[2] As a comparative group the author takes 37 female patients (a regrettably small number) who at the time of their examination gave no clinical evidence of cardiac disease. The general conclusion that can be drawn from his data is that as a group the women with heart disease are characterised by greater body-weight associated with greater chest and especially greater umbilicus girths. It will be recalled that the same feature was observed in the earlier study on men. In stature and correlated vertical dimensions the "cardiacs" and "non-cardiacs" show no material differences. A higher proportion of the cardiacs are classified as pyknics and a lower proportion as asthenics, but their superiority over the non-cardiacs in weight and correlated horizontal dimensions appears to be independent of somatic type, since in each group, pyknic, intermediate, and asthenic, the cardiacs have the higher average weight and chest girth. In their earlier study on males

[1] Human Biology, February, 1936, p. 38.
[2] Ibid., 1934, vi., 650; see THE LANCET, 1935, i., 242.

Pearl and Ciocco suggested that the differences might be a consequence of relative over-eating and lack of physical exercise. Ciocco has tried to gain information on this point by questioning the women about appetite and regularity of bowel movement. The proportions of cardiac and non-cardiac patients who admit eating heartily, average, or sparingly do not differ, but a higher proportion of the cardiacs complain of irregular bowel movements or chronic constipation. These two facts taken in conjunction strengthen the hypothesis, Ciocco suggests, that the accumulation of fat in the cardiacs may be in part the effect of dietary habits not in keeping with their physical activity. Clearly there is no proof that this relative overweight is an ætiological factor in heart disease, but it is of some interest in view of the beneficial effect in some cases of restricted diet and consequent reduction of weight. In addition to the detailed statistical analysis of his two groups, Ciocco includes anthropometric measurements of women with various diseases taken from several published sources, which may prove useful to workers in this field.

The second study,[3] by Raymond Pearl, Marjorie Gooch, John R. Miner, and Walter Freeman, is a continuation of the author's earlier work on the relation of the endocrine organs to mental disease.[4] The object of the present analysis is to determine whether the endocrine organ weights individually, or the general endocrine system pattern, are differentiated quantitatively in the asthenic, intermediate, and pyknic body types, with a fourth group made up of individuals not falling precisely into these so-called "pure" types, labelled dysplastics, and of somewhat doubtful content. All measurements were, it will be remembered, taken at autopsy. As would be expected, there is a clear tendency for the average weight of the endocrine organs to increase as we pass from asthenics to intermediates and to pyknics. As the average body-weight increases from habitus group to group the average weight of all the endocrine organs tends also to increase. Does the latter increase when body-weight is taken into account, or put in other words, do the pyknics, on the average, carry a greater or smaller dosage of endocrine organ tissue than do the asthenics per kilogramme of total body-weight? The authors' answer to this question is quite definite. Uniformly in each of their groups (males, females, white, and negro) they find that the average quantitative dosage of endocrine organ tissue per kilogramme of body-weight is greatest in asthenics, less in intermediates, and least in pyknics so far as concerns adrenals, thyroid, parathyroids, hypophysis, epiphysis, and gonads, while in the relative dosage of thymus tissue the order is reversed, being least in asthenics, greater in intermediates, and greatest in pyknics. The differences between the two extreme types, asthenic and pyknic, are generally large in amount and thus reveal an interesting association between the quantitative endocrine system on the one hand and the bodily habitus types on the other.

ILLICIT TRAFFIC IN NARCOTIC DRUGS

VALUABLE evidence of the extent of illicit manufacture and traffic in narcotic drugs is furnished by a report to the League of Nations by the Secretariat. The report summarises the amounts of the various drugs seized in each country during 1934 as well as details of seizures and the discovery of clandestine manufactories during the latter part of 1935. The total seizures of raw opium in 1934 exceeded 34,170 kilogrammes, the largest amounts being in French Indo-China, Soviet Russia, and Burma; 8064 kg. of prepared opium were seized, more than half having been found in the Netherlands; 236 kg. of morphine were confiscated, Turkey, China, and Egypt yielding the chief contributions. Nearly 500 kg. of heroin were seized largely in Shanghai and Hong-Kong. Of cocaine some 117 kg. were seized, Burma and the International Settlements of China reporting the highest figures. It was in the last-named area in Shanghai that four clandestine factories were unearthed. The culprits, who were Chinese nationals, were prosecuted and fined or imprisoned, or both, the heaviest sentence being two years imprisonment and a fine of 300 Shanghai dollars. So far as information is furnished for the year 1935 it would appear that the amount of illicit traffic, as judged by seizures made, was less than was the case in 1934.

A FINAL LECTURE

Mr. H. A. T. Fairbank, in giving his final lecture last week as senior orthopædic surgeon to King's College Hospital, chose to speak impromptu on some general diseases of the skeleton. It was the kind of lecture that students do not often get; they are supposed by examiners to know about developmental errors many of which they do not get a chance of seeing. Mr. Fairbank circulated a list of over sixty such conditions, although he dealt in his address with only a few of the more common ones. The lecture was illustrated by lantern slides, and at its conclusion the lecturer was presented with a silver replica of the splint which bears his name. More than this, the theatre was decorated with streamers, and to reach it Mr. Fairbank was compelled to walk through a triumphal arch of human bones and splints.

THE King has consented to become patron of the Royal Medical Benevolent Fund.

THE second International Congress for the Protection of Infancy will be held in Rome in the early part of October, immediately following the sessions of the fourth International Pædiatric Congress.

WITH the death of Sir JOSEPH PETAVEL at the age of 62 years we lose a physicist of singular practical acumen. Sometime professor of engineering in Manchester University and director of the Whitworth Laboratories, in 1919 he succeeded the late Sir Richard Glazebrook as director of the National Physical Laboratory at Teddington. His contribution to aeronautical research was outstanding. He was an original member of the National Radium Commission.

THE Medical Research Council have appointed Sir Patrick Laidlaw, F.R.C.P., F.R.S., to be deputy director of the National Institute for Medical Research, and head of the department of pathology and bacteriology there, in succession to the late Captain S. R. Douglas, F.R.S. Sir Patrick has been a member of the council's scientific staff at the National Institute since 1922. He has latterly been engaged chiefly in the investigation of diseases due to ultramicroscopic viruses. His success as leader of the team of workers who solved the problem of securing immunisation of dogs against distemper and subsequently discovered the virus of epidemic influenza will be fresh within the recollection of our readers.

[3] Human Biology, February, 1936, p. 92.
[4] Ibid., 1935, vii., 350 and 555; THE LANCET, Feb. 1st, 1936, p. 271.

PROGNOSIS

A Series of Signed Articles contributed by invitation

XCV.

PROGNOSIS OF ACUTE POISONING

In Great Britain and the United States of America carbon monoxide outnumbers all the other poisons combined as a cause of fatal acute poisoning. The great relative frequency and gaseous nature of this poison entitle it to primary and separate consideration. The other common poisons causing dangerous poisoning in civil life are all liquids or solids.

Carbon Monoxide

Most fatal cases of carbon monoxide poisoning are suicidal, but this insidious gas claims many victims as the result of accidental inhalation. Its common sources are illuminating gas, exhaust gases from motors, and coal gas from stoves and fires. Carbon monoxide is poisonous because it combines with the hæmoglobin of the blood to the exclusion of oxygen. Otherwise it is physiologically inert. The gassed patient suffers simply from anoxæmia, and his state of oxygen-lack may be as severe as that of blue-black victims of obstructive asphyxia. The bright complexion of these patients is deceptive, being due to the red colour of carboxy-hæmoglobin.

There is no question as to the lethal quality of carbon monoxide and many men or women exposed to it are dead when discovered. On the other hand, many are only slightly or moderately poisoned and soon recover when removed from the contaminated atmosphere. Interest in regard to prognosis centres on the intermediate group of cases which are dangerously poisoned and whose lives hang in the balance. These are easily recognised because they are always unconscious or on the verge of coma—i.e., collapsed and stuporose. The inexperienced observer may be misled by their appearance which is by no means alarming. Not only is the colour good, but the breathing, owing to anoxic depression of the respiratory centre, is unobtrusive. The picture of a pink, quietly breathing, and apparently slumbering patient may well deceive the observer with tragic consequences. If a gassed patient cannot be roused his life is in jeopardy; without prompt treatment many such patients die.

The immediate prognosis in serious carbon monoxide poisoning has been radically changed since the introduction in 1922 by Henderson and Haggard of the carbon dioxide-oxygen method of treatment. It is now almost true to say that no case, however deeply gassed, discovered alive and efficiently treated will die. The treatment consists in the continuous administration, by means of a mask and bag, of a mixture of 7 per cent. of carbon dioxide and 93 per cent. oxygen. In patients whose breathing is greatly depressed the administration is started with artificial respiration by the Schäfer prone-pressure method. The powerful stimulus of the carbon dioxide to the respiratory centre soon causes a remarkable increase in breathing, and this combined with the inhalation of oxygen in place of air very greatly speeds up the displacement of carbon monoxide from the blood by oxygen.

Most patients recover consciousness within an hour under the carbon dioxide-oxygen treatment, but those who are very gravely ill may remain unconscious for days. Such prolonged unconsciousness is not due to poisoning, since little carbon monoxide remains in the blood after an hour's hyperventilation with oxygen. The continuous coma is due to damage done to the nervous system by the profound anoxia before treatment was begun. Treatment must always be prolonged until normal breathing is not only established but sustained. Furthermore, all victims must be carefully watched for many hours after cessation of treatment as respiratory depression may return and the patient may relapse; in fact there may be recurrent relapses, any one of which may prove fatal if the patient is left unattended.

Very few patients after recovery of consciousness experience anything worse than a few days of malaise with headache, dizziness, and nausea. In an extremely small proportion the acute poisoning is followed immediately or in one to three weeks by mental or nervous sequelæ. The commonest mental sequela is a confusional psychosis; the commonest nervous sequela is a parkinsonian condition.

Swallowed Poisons

According to the annual statistical reviews of England and Wales by the Registrar-General deaths from swallowed poisons are due, in order of frequency, to the following agents: phenol and phenolic disinfectants; corrosive acids and alkalis; prussic acid and cyanides; oxalic acid and oxalates; various narcotic and analgesic drugs—opium derivatives, barbiturates, and aspirin; strychnine and nux vomica; arsenic; mercury salts; phosphorus; atropine and belladonna.

The prognosis in acute poisoning by any of these poisons must mainly depend upon the nature of the poison and the amount of it which has been ingested and retained. Academic discussion of the relative toxicities and lethal doses of these poisons is likely to be of little service to the practitioner confronted only very rarely with a case of poisoning. Such infrequently used data eludes the memory in an emergency. Moreover, such considerations neglect the fact that in practice one does not often know precisely what the patient has taken or how much of it. Patients who have taken sub-lethal doses will recover; the important practical point is whether or not a particular person who has *probably* swallowed a lethal dose of poison can or cannot be saved. His chances of survival depend upon the possibilities of: (*a*) removal or neutralisation of the poison; (*b*) counteraction of such effects of it as are immediately endangering life.

REMOVAL OR NEUTRALISATION OF THE POISON

The possibility of removal of the poison must be greatly influenced by the time which has elapsed before the case is seen. The hope for the patient varies inversely with the delay in beginning treatment. But even if many hours have elapsed eliminative treatment should not be neglected. Gastric lavage is the method of choice, except in the corrosive cases, and properly performed is most effective. If the patient is seen within an hour or two the thoroughness with which the stomach is washed out is the chief factor in the prognosis so far as treatment is concerned. Two gallons of water should be used, a pint at a time being run into the stomach. Such thoroughness is almost impossible unless the patient is placed in a proper position—i.e., with the mouth and pharynx on a lower level than the larynx and trachea—so that fluid regurgitated around the stomach-tube does

not enter the air-passages. This point, of paramount importance, does not appear to be mentioned in most text-books. Attempts to carry out a stomach wash-out with the patient in an unsuitable position (lying on the back or sitting up) lead in conscious cases to great distress and coughing and spluttering, while in comatose cases with absent cough reflexes immediate death from drowning or later death from broncho-pneumonia may result. Many an unconscious patient must have been killed in this way who might have survived had nothing at all been done to him. The most convenient suitable position of the patient for general use is lying *prone* upon a couch, bed, or table with the head, supported by an assistant, projecting over its end, the face directed and bent towards a bucket on the floor. The operator sits or kneels on the floor while passing the tube. Prolonged lavage with the patient in this position is an easy and safe procedure.

The only swallowed poisons for which gastric lavage is contra-indicated are the corrosive acids and alkalis (sulphuric, nitric, and hydrochloric acids, and caustic soda, caustic potash, and strong ammonia). The phenolic disinfectants and oxalic acid are corrosive, but not sufficiently so to preclude lavage. The corrosives should be neutralised by the administration of weak alkalis or acids. In my opinion the only condition in which neutralising antidotes are of much practical importance is when they are used against corrosives. With other swallowed poisons thorough mechanical removal by lavage is of much more value than is any attempt to render the poison inert.

COUNTERACTION OF IMMEDIATE DANGERS TO LIFE

There are only five common modes or mechanisms by which life is primarily endangered in acute poisoning: (1) asphyxia; (2) depression of the central nervous system—i.e., coma; (3) dehydration and dechloridation; (4) pain and shock; (5) excitation of the nervous system—i.e., violent delirium or convulsions.

The omission of circulatory failure from this list demands some explanation. Very few poisons seriously injure the circulatory system as a primary effect. Circulatory failure may be the almost invariable final mode of death, but it is secondary to one or more of the above-named effects.

From the point of view of prognosis it is fortunate that these five dangerous conditions are easy not only to diagnose but to treat. *Asphyxia* is effectively treated by clearing the patient's air-way, doing artificial respiration, and the giving of oxygen and/or carbon dioxide. Toxic *coma* is not quite so easily controlled, but luckily its seriousness is often largely due to coexistent asphyxia from respiratory obstruction or depression. The administration of strychnine and coramine in really large doses (i.e., strychnine grain $\frac{1}{4}$ and coramine 5–15 c.cm.), repeated as often as once every hour, is very valuable in deep coma; so also is repeated lumbar puncture as advised by Willcox and Purves-Stewart. *Dehydration and dechloridation* from vomiting and diarrhœa is the lethal factor in cases of poisoning by the gastro-intestinal irritants. Continuous intravenous drip saline therapy should completely abolish this cause of death. *Pain* and shock due to pain can be controlled by morphia. *Delirium* and *convulsions* are now controllable by the use of barbiturates such as pernocton.

The considerable efficacy of treatment, both in eliminating poison and counteracting lethal effects, in acute poisoning due to swallowed poisons justifies the statement that in most patients seen before they are actually moribund the chances of survival are very good.

H. L. MARRIOTT, M.D., M.R.C.P.,
Resident Medical Officer, the Middlesex Hospital, London; Assistant Physician, the Miller General Hospital, Greenwich.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdr. T. Gwynne-Jones and Surg. Lt. (D.) A. C. Horne lent to N.Z. Division for three years (*Achilles*, on recommg.).

Surg. Comdrs. W. A. Hopkins to *Excellent* and F. L. H. MacDowel to *Repulse*.

Surg. Lt.-Comdrs. R. G. Anthony, J. G. Holmes, and E. R. Sorley to rank of Surg. Comdr.; J. G. Currie to *Royal Sovereign*; and R. B. McVicker to *Tamar*.

Surg. Lt. W. Greaves to rank of Surg. Lt.-Comdr.

Surg. Lt.-Comdr. (D.) L. R. Armstrong to *Drake* for R.N.B.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt. G. C. Martin to *Excellent*.

Proby. Surg. Lt. A. V. Griffiths to *Royal Sovereign*.

Surg. Sub-Lt. T. D. R. Aubrey promoted to Surg. Lt.

ROYAL ARMY MEDICAL CORPS

Short Service Commissions: Lt. (on prob.) J. H. Caverhill is restd. to the estabt.

ROYAL AIR FORCE

Wing Comdr. T. J. Thomas to Headquarters, Fighting Area, Uxbridge, for duty as principal medical officer.

INDIAN MEDICAL SERVICE

Col. I. M. Macrae, C.I.E., O.B.E., Ind. Med. Serv., V.H.S., is apptd. Hon. Physician to the King vice Maj.-Gen. T. G. F. Paterson, C.B., D.S.O., Ind. Med. Serv., ret.

Lt. (on prob.) C. W. A. Searle is restd. to the estabt.

DEATHS IN THE SERVICES

The death occurred at St. Briavels, Gloucestershire, on March 13th, of Surg. Capt. OCTAVIUS WILLIAM ANDREWS, C.B.E., R.N. retd. Born in 1865, the son of Dr. H. C. Andrews, he was educated at Bishops Stortford, Durham University, and St. George's Hospital, London, and qualified M.B. Durh. in 1887. He entered the Navy in 1889, being surgeon of *Ringdove* from 1891 to 1894. In 1898 he was sent to the Pasteur Institute at Paris and was then appointed to *Tamar*, Receiving Ship at Hong-Kong. Later he was fleet surgeon of *Diana* when he made a "Report on the Island of Cyprus." In 1913 he retired with the rank of surg. capt. but was recalled and took part in the European War from 1914–19, being mentioned in dispatches and created C.B.E. (Mil.) in 1919 as well as an officer of the French Legion of Honour. In 1894 he wrote a "Report on Leprosy and Depopulation in the South Pacific Islands," and later "Seamarks and Landmarks." For his public health work he was awarded the Chadwick gold medal.

The death occurred on March 7th of Surg. Commander JULIAN LIONEL PRISTON, R.N. He was born at Gillingham, Kent, in January, 1892, son of Engineer Rear-Admiral R. B. Priston. He received his medical education at the London Hospital, qualified M.R.C.S. Eng. in 1914, and in April of that year entered the Navy as surg. lt., serving at the Naval Hospital, Plymouth. After the war he graduated M.B., B.S. Lond.; he took the D.P.H. in 1922, and became F.R.C.P. Lond. in 1926. In 1920 he became assistant pathologist at the R.N. College, Greenwich, where he worked on the germicidal efficiency of certain antivenereal prophylactics and the reaction of the blood in health and disease, being awarded the Gilbert Blane gold medal in 1923. Later he was transferred to the medical department of the Admiralty as assistant for hygiene duties to the director-general. Since 1933 he had served at the Royal Hospital, Chatham.

SPECIAL ARTICLES

IN HONOUR OF ALMROTH WRIGHT

On Tuesday of last week a graceful tribute to the work of Sir Almroth Wright was paid when he was presented with a bust purchased with subscriptions from those who over many years have admired the untiring persistence and great results of his work. The presentation was made in the library of the medical school of St. Mary's Hospital before a large and representative gathering, and Sir Henry Dale before unveiling the bronze, which is to stand in the inoculation department of the hospital, spoke in eloquent and intimate manner of the debt owed by the world to Wright.

SIR HENRY DALE'S TRIBUTE

Sir Henry Dale said that he had an easy task before him, since all were present with the one object of expressing their admiration and affectionate regard for Sir Almroth Wright, now approaching the completion of his seventy-fifth year. They wished to tell him that they all realised what science and humanity had gained by his complete and tireless devotion, through so many years, to the increase of health-giving and life-saving knowledge, by work with his own skilful hands and his own ingenious mind. They wished to ask him to allow them to leave a permanent memorial of himself and his work in his own institute, so as to give some contact with his inspiring personality to those who would be working there long after all present had passed from the scene.

Some of those present could appreciate Almroth Wright's achievements chiefly from their practical results in the prevention and cure of disease and the relief of suffering. They would have in mind the comparison—who could miss it?—between the tragic toll taken of our armies in the South African War by the enteric fevers and the experience of the Great War, in which this one of the weapons in death's armoury had been effectively put out of action by the knowledge which Almroth Wright's researches had by then made ready for use. The great institute in which they were meeting was itself a monument of generous recognition of the great practical results for humanity, which had long been, were still being, and would continue to be obtained by the work in progress there into a far distant future.

There were others among those present who from a more intimate and expert knowledge could recognise not only the practical results, but the detailed interest and subtle beauty of the researches which had made these results possible. They knew their friend Sir Almroth Wright as a scientific philosopher, building and rebuilding, with brilliant ingenuity, the theories which gave order and coherence to the facts which he observed, and threatening to tax the resources of the Greek Lexicon for nomenclature to give precision to his ideas; but, though Wright was a philosopher with this scholarly instinct, it was never in the study or the library that they expected to find him. They knew by experience that, when they visited him in that institute, at any time of the day or even far into the night, they would find him bending over his laboratory bench, patiently at work with his own hands and eyes, and with the simplest of mechanical aids, putting ingenious questions to Nature, and loyally and humbly accepting her answers. In that he resembled the other great scientific investigators throughout the ages. When he thought of their friend at his laboratory bench he was reminded of another great medical investigator—a friend of Sir Almroth Wright's—the late Paul Ehrlich. Ehrlich used to say that he could carry out all the experiments which he wished to make if he were provided with a supply of dyes and chemicals, a handful of test-tubes, a water-tap, and a sheaf of blotting-paper. It might be suggested that Almroth Wright would require for his beautiful researches little more than a supply of glass tubing, some rubber teats, a dab of plasticine, a gas burner, a microscope, and a tolerable incubator. With these he would need as material only some drops of blood, taken from himself, his colleagues, or his patients—for throughout his career, from his earliest researches to those which were still actively in progress, he had been consistently a man of blood. With these simple appliances and materials, his inspired imagination would devise experiments leading always to deeper knowledge of the nature of human blood, with its subtle mechanisms and delicate reactions to infection. He sometimes thought that they might regard Sir Almroth Wright as one of the born burglars of Nature's mysteries, fashioning his skeleton keys with his own ingenious fingers from the most homely materials, and using them with a touch of genius to force one after another of the intricate locks with which Nature seems to guard her secrets.

Seventy-five years was a long innings, and, in the case of Sir Almroth Wright, the score was 75 not out and well set. His long career included periods at Belfast, Dublin, Cambridge, Sydney, the Army Medical School at Netley, and, lastly, the Inoculation Department at St. Mary's Hospital, which he founded, and where they still found him working with a group of enthusiastic colleagues. In every place where he had been he had acquired devoted friends and admirers and enthusiastic disciples, and all were represented among the subscribers to the memorial, which they were going to ask him to accept, and many of them were represented in person in that gathering.

The portrait bust by Donald Gilbert, which was now unveiled, had the advantage over any painted portrait, that the subject could be seen from every aspect. It would preserve a memory of Sir Almroth Wright, which was the most familiar to those who visited him in his laboratory—namely, that of the back of a massive head and shoulders, bowed with patient diligence over his working bench. From the other aspect they would see no actual smile fixed in permanent bronze; but, he thought that they would agree, there was the hint and promise of the smile of friendly humour, which so characteristically lit up Sir Almroth Wright's features when he was talking to his friends. They all hoped that their friend would be willing to leave this portrait and memorial of himself in the niche on the landing of the institute, which the architect had, with proper foresight, provided for such a purpose.

He could not help introducing one note of sadness into a happy occasion. There was one man whom they were all sadly missing on that day—Almroth Wright's devoted friend and assistant, and his most intimate collaborator for many years, and, in more recent years, his own (Sir Henry Dale's) most loyal senior colleague and dearly loved friend, Stewart Ranken Douglas. All who knew Douglas, who died last

January, would know that he would have been among the most enthusiastic members of that gathering in honour of his great friend and teacher.

Sir Henry Dale then handed to Sir Almroth Wright an illuminated address, with the names of all the subscribers to the memorial bound in a small volume, asking him to receive this and the portrait bust as very sincere tokens of the admiration and affection in which he was held by all who had participated, and of their desire to keep the memorial of his personality and his influence alive among all who would follow him in his work.

SIR ALMROTH WRIGHT REPLIES

Sir Almroth Wright deplored that language provided only descriptive words for objects and events, and made no provision whatsoever for the more important business of expressing the emotions. Everybody was aware of that defect of language. The lover found it difficult to express his affection even to an ideally sympathetic audience of one. And everybody found it difficult to express in a convincing manner sympathy with the happiness or bereavement of others. And a man who had to express an internal commotion of gratitude experienced, as he did, the same sense of incompetence.

I would have you note that it is not impossible to express emotion through the channel of appropriate combinations of rhythmical words. It can be done provided only you are an orator and a poet. When however you are neither the one thing nor the other, then you have only the poor alternative—and I propose to avail myself of that now—of enumerating those to whom one feels one's special thanks are due.

I would, first in order, desire to express my gratitude to my friend Sir Henry Dale for having done me the honour of functioning as your spokesman and for having, in conveying this gift of yours to me, employed every sort of over-indulgent kindly expression. I would further express my gratitude to the sculptor—Mr. Donald Gilbert—for the skill and pains he has lavished upon this bust. I would express my thanks also to all those numerous friends whose names are written in this book as co-partners in this presentation. And I am specially grateful to the organising committee and their secretary, but I have from them the strictest orders that I must not even mention them by name. I would further thank all those who are assembled in this hall to-day for their courtesy in coming, some of them far away from London, to add distinction and grace to this ceremony. And lastly, I would thank those who would have desired to be here, but have been prevented by illness or absence abroad. And I have, among those absent for this latter reason, specially in mind Lord and Lady Iveagh. I would have you, when you presently make the round of the spacious quarters of this Institute of Research and Vaccine Therapy, bear in mind that this building owes its existence in large part to the munificence of Lord Iveagh.

I will now ask you to let me off saying anything more on the subject of my emotional reactions and my incompetence in giving voice to them. It will be more within my competence, and more congenial to the vocation of a scientist, for me to think out with you the philosophic basis of this ceremony in which Sir Henry Dale, and you, and I are playing our several parts. I would in particular very briefly discuss with you two questions: first, that of the association of the word pleasure with work in general and medical research work in particular; and secondly, the question of the rewards of work. The term "pleasure" is the most enigmatical in the English language. It embraces three kinds of "feelings" and "inward sensations" which are as far as far can be apart. *First*, pleasure includes what I am accustomed to call "voluptuary pleasures"—or, if you prefer the term, "pleasures of sense." All men, however much they may disagree in other points, are agreed that the pleasures of sense are genuine pleasures. There are pleasant sights and pleasant sounds and joys of taste and pleasures of smell—"fragrant the fertile earth," for example, "after soft showers." There is a *second* kind of internal sensations which count for a great deal in life, but to which the term "pleasure" is only doubtfully applicable. These are satisfactions of our sensory nerves—"satisfactions of our sensory requirements," we might call them. Sleep would be such a requirement. Life without sleep would be unendurable. And sleep has had from the poets its store of tenderest names. But even the poets would scruple to describe sleep as a pleasure. We may think further of the requirements of our nerves of temperature. We suffer from intense malaise when we are cold and chilly and we revive when we get comfortably warm. But relief from the malaise of chill is not what we have in view when we speak of pleasure. Precisely the same thing holds of freedom from hunger and thirst. There are many other somatic and psychical urges (biologists call these impulses *tropisms*) which are all of them reliefs from sensory discomforts, but would none of them properly be called pleasures. In particular, if I had time I might speak to you about our stereotropic cravings—our cravings for intimate contact with solid substances.

I come now to a *third* description of inward feelings which have been called pleasures. These are distinguished from the others by the fact that they come into consideration in connexion with work. And there are about these feelings all sorts of insulting misunderstandings abroad. I call it an insulting misunderstanding when a man who has never done a hard day's work in his life comes to one who has experience of the miseries of physical fatigue and tells him that it is perfectly plain that everyone who works works because he finds that work is a pleasure. Now no one who has ever done any strenuous physical or intellectual work ever thinks of work in that way. Hard work is always compelled work—there being of course two different sorts of compulsion. The one sort which we most frequently associate with the term is external compulsion. But there is also internal compulsion, this being an urge to get rid of the misery of wanting to do some particular thing (I call that misery "neuronic tension"), and to feel that the thing is done, or is at any rate so far as we are concerned done (I call that relief neuronic relief). And the proof that all hard work is done not for the sake of what is ordinarily called pleasure but from external or internal compulsion, is to be found in the fact that the "ordinary sensual man," who is untroubled by urges, absolutely refuses to undertake any of the serious forms of work. You cannot get him to dig the ground, or to learn languages, or to follow any handicraft or profession, and you may tell him as much as you please that there is pleasure in hard work, but he—for he is not a fool—knows perfectly well that there is in hard work always more pain than pleasure and more "neuronic tension" than "neuronic relief."

I have been talking with you, as you will have recognised, in quite general terms about the relation

between work and that spurious entity which is denoted by the term pleasure. But while most of you have been dwelling upon the instances of successful research work emphasised by Sir Henry Dale, all of us here who are engaged in *medical research* have had in mind the enormous disproportion of failure to success. And it is that which puts medical research in the same category of pleasure-giving occupations as, let us say, painfully attempting to climb Mount Everest, or passing a winter alone under the snow for the sake of making meteorological records.

I pass now to consider what are the external rewards of research work. For you will want to know whether the hard work of medical research can be made up to the worker by external rewards; and you will want to know something about the available rewards. I may remind you, to begin with, that Marcus Aurelius scoffs at the notion of rewards. "Does the eye," he says, "ask a reward for seeing, or do the legs ask a reward for walking?" And, you may rejoin, Does the brain ask a reward for thinking? That sort of high flown talk may seem foolishness, so I return to the discussion of rewards and of the appropriate sort of rewards for successful research.

I have it from the lips of a very famous research worker now dead that he who did important research work, such as he himself had done, should receive the emoluments of an archbishop and should be presented with a Rolls-Royce car and a salmon river. I have also heard from more than one research worker that those who are successful should be rewarded with titles of honour and public fame and decorations and fellowships of learned societies and gold medals and honorary degrees, and I can take heart of grace and say that to me these things may upon occasion have their value. For there is in my memory a speech made by a distinguished friend here present when returning thanks for a dinner given to him on his election into the Royal Society. He made this point, that every intellectual worker who is not incurably vain must in due season ask himself whether he is really the stout fellow that he imagines himself to be. And there followed then the point that a man who has been perturbed by such self-questionings is put into good heart again by his election into a learned society or the award of a medal, for these may be taken as sure indications that his work is really held in some esteem. I should like to put this to you; that the amount of pleasure that can be extracted from gratified intellectual vanity is—I venture to think—very strictly limited. And as for the ordinary flattering speech it is much better immediately forgotten. And there is with flattering speeches this special disadvantage—a man cannot with any decency go about retailing them to his friends. But I would make here one exception. There is a kind of flattering speech which is so tempered with reserves and criticism that it may quite profitably be remembered; and there is this good point about such a speech that it may without immodesty be repeated. Let me give you an example. A professor was seeking information as to the merits and demerits of your honourable servant now addressing you. "Oh!" replied Metchnikoff (and the professor reported this sally to me with pardonable pride), "Wright is a man who has very good original ideas: but he has also ideas which are only original."

I come now to the point as to what is the really gladdening reward of laborious research work. I find this reward not in the pleasures of sense which arrive in the course of our work. For these are few and rare. Nor do I find that reward in the neuronic relief which comes along with weariness at the end of a long day's work, for the work of the day often turns out unprofitable. But I find that reward in the satisfaction of certain important psychical requirements. Just as a man requires sleep when he is tired, and food when he is hungry, and just as he longs for contact with the firm land and rest after a bad channel passage, so he requires, for the peace and satisfaction of his mind, some goodwill and affectionate esteem from those around him. Presentations, as I understand them, have something to do with this and this presentation which has been conveyed to me constitutes, I venture to believe, no exception to that rule. Finally, let me cite to you a passage that strikes the note upon which it will be good to end. It is—you will be surprised to hear—a criticism (I think a very penetrating criticism) of Shakespeare by Bernard Shaw. This is the passage:

> "You suddenly see that Shakespeare, with all his flashes and divinations, never understood virtue and courage—never conceived how any man who was not a fool could, like Bunyan's hero, look back from the brink of the river of death over the strife and labor of his pilgrimage, and say, 'yet do I not repent me'; or, with the *panache* of a millionaire, bequeath 'my sword to him who shall succeed me in my pilgrimage, and my courage and skill to him that can get it.'"

MEDICINE AND THE LAW

Heart Disease as an Accident

Reddish *v.* London, Midland and Scottish Railway, decided at the Manchester county court last week, was one of those interesting cases where death from heart disease is found to be an accident within the Workmen's Compensation Act. An engine-driver collapsed and died on the express from Manchester to London. The court had to consider whether his employment had caused a strain which in turn had caused death. The widow contended that the heart attack was due to her husband's effort in helping to turn the turn-table at Manchester station before beginning the journey: it was aggravated, she said, by his action in closing the regulator of the engine when the train was running down from Haddon Tunnel to Rowsley. The judge went in person to the railway station, entered the cabin of an express engine, and tested for himself the requisite degree of exertion. He came to the conclusion that to pull the regulator over when the train was at rest meant no serious effort to an engine-driver in good health, but that, if the train was travelling down an incline with considerable oscillation, the effort would be a strain to a man in Reddish's state of health. The work contributed to, and materially accelerated, death; the employers were therefore liable to pay compensation.

The legal position has been well established since Clover Clayton and Co. *v.* Hughes in 1910, where the workman ruptured an aneurysm of the aorta while merely using a spanner to tighten a nut without any unusual effort. There was medical evidence that the aneurysm was so far advanced that death might have occurred during sleep. The employers contended that it was a case of disease and not of accident. "Accident," they argued, must be some sudden or unexpected occurrence of an untoward kind; the ordinary use of a spanner could not be an accident within the statute. The Lord Chancellor, however, laid down that the accident might be "something going wrong within the human frame, such as the straining of a muscle or the breaking of a blood-

vessel." It was sufficient that the "accident" was too great for the man undertaking the work, whatever the degree of exertion or the condition of health. It is unnecessary to prove sudden strain, but there must be evidence to connect the physical breakdown with the work. Thus in McNamara *v.* Davis (1933), where a lorry-driver was found dead beside his lorry and it appeared that he suffered from an aneurysm which had burst, the employers were held not liable in the absence of evidence that any accident had caused, or contributed to, his death. On the other hand, in two further cases decided in 1933 the employers had to pay. In Partridge Jones and Paton *v.* James the workman was a dipper in some iron-works; in Falmouth Docks *v.* Treloar he was a labourer unloading sacks of china clay. The arbitrator, said the court, must always consider whether, in substance and so far as he can judge, the accident comes from the disease alone (so that, whatever the man had been doing, the fatal result would probably have occurred all the same) or whether the employment contributed to it.

Sardines Unfit for Human Food

A recent prosecution at the Mansion House disclosed some discreditable dealings in sardines unfit for human food. For some reason, which puzzled the presiding alderman, a consignment found unsatisfactory when examined at the London Docks last July was not condemned and destroyed forthwith at the time but was allowed to be sent back to the Portuguese packers. Some of the tins were found to be "blown" and to have been resoldered; the goods were far below the standard rightly required of food for human consumption in England. Last December this unwelcome consignment reappeared at the City and Continental Wharf, Upper Thames-street. Though it had been "reconditioned" and repacked in Portugal, it was none the more fit for human consumption. It was accordingly seized and condemned and the prosecution followed. The defendant, Edward Montague Fogden Humphrey, of Waverley Manor, Great North Way, Hendon, was summoned as the owner of the consignment. He pleaded "guilty." It was stated in extenuation that the goods were intended for re-export rather than for sale in England; there was indeed a half-suggestion that they were destined to be war stores for the Abyssinians. Evidence was given of a previous conviction for trafficking in dangerous drugs for which he was sentenced to six months' imprisonment in 1923. The alderman now imposed a sentence of three months in the second division. A representative of the Consorcio Portugues de Conservas de Peixe said that the president of that association had taken the trouble to come to London in case he could give the court any assistance. It was stated that the persons in Portugal instrumental in sending these sardines back to London after the first inquiry had been fined something like £1800 and forbidden to engage in the sardine trade for two years. It seems a pity that English law has no equivalent power of disqualifying a dealer who shows such indifference to proper standards of public health. Our rude forefathers might have put him in the stocks and fed him with his own unsavoury wares.

Venereal Disease Act Infringement

The House of Commons lately showed no desire to prevent quacks from advertising their cures for cancer, epilepsy, and other afflictions. There is, however, one range of ailments for which Parliament has forbidden remedies to be prescribed or recommended by anyone but a registered medical practitioner. The Venereal Disease Act of 1917 applies its prohibition even where the defendant has some genuine knowledge of pathology. On March 19th Ernest S. Lewis was fined £15, with £5 5*s.* costs, at Bow-street police-court, for having "announced" treatment for venereal disease in the pages of a book entitled "Every Man, Woman, and Child their Own Physician." The prosecution stated that it was probably true that Lewis had considerable knowledge of pathology. Lewis himself said that his book emphasised that the treatment which he advocated should be used in conjunction with medical supervision. He did not know he had committed any offence. The magistrate pointed out that the maximum punishment under the Act was two years' imprisonment; it was clear that the legislature intended serious notice to be taken of such offences.

UNITED STATES OF AMERICA

(FROM AN OCCASIONAL CORRESPONDENT)

DAYTON DISPENSES WITH CLINICS

DAYTON, Ohio, is the headquarters of the National Cash Register and is a typical mid-western manufacturing city of 200,000 inhabitants. It is situated in Montgomery county. In March, 1934, the county medical society voted to close all out-patient clinics in the city. There had been some precedent for such action. The therapeutic clinics of the Los Angeles county health department had been abolished in the previous year. Youngstown, Ohio, had closed all clinics except those catering for patients with communicable disease. But Dayton is believed to be the first city to have made a complete sweep of all its clinics of whatever nature.

Organised medicine here is traditionally opposed to clinic practice and nourishes a belief that hospital and health department clinics habitually serve many patients who but for such service would consult and pay private practitioners. The advent of the depression lent fervour to this need as doctors saw many of their former paying patients added to the clinic rolls. From 1929 to 1933 the relief rolls of the city increased by 400 per cent. In the same period the attendance at public clinics increased by 160 per cent. Moreover when federal aid became available for the medical treatment of indigents, even the poorest became paying patients of a private physician when they did not elect to attend a clinic. Anyhow the clinics were closed. On Dec. 1st, 1935, federal aid for medical relief came to an end. The county relief funds also were depleted. On Dec. 2nd the Dayton health department reopened its venereal disease clinic staffed by two part-time salaried city physicians. The opening was approved by the clinic committee of the county medical society provided (1) there should be adequate investigation of the economic means of patients; (2) that the clinic be held on city owned property and that the doctors be adequately paid. The public relations committee is at present exploring the possibilities of opening other clinics to meet the present pressing need.

The debate as to the desirability of "socialised medicine" continues in American high schools, doctors in almost every community contributing to the negative. Common arguments against "socialised medicine" are that it destroys the physician-patient relationship, that it is unnecessary

since doctors already supply all needed medical care free of charge when the patient cannot pay, that it introduces politics into medicine with resulting political patronage and inefficiency. Exactly what constitutes "socialised medicine" it is not easy to say. Physicians are employed on a part-time basis in many communities to take care of the indigent sick, and this with the apparent consent if not approval of the local medical societies. The American Medical Association has for some years given publicity to an arrangement whereby several county medical societies in Iowa have contracted with the local government to supply medical service to indigents. Some of these Iowa contracts, but by no means all of them, guarantee choice of physician to the patient.

MAYHEM CHARGES IN CALIFORNIA

Two doctors in California have been indicted on charges of conspiracy to commit mayhem in connexion with the sterilisation of Ann Cooper Hewitt, only grandchild of the inventor of the quartz mercury-vapour lamp. The California sterilisation law applies only to those legally committed to State institutions as insane or feeble-minded. Since no evidence was presented that Miss Hewitt had ever been so committed the judge ruled that the sterilisation law could not be invoked by the defence. Meanwhile the programme for eugenic sterilisation goes forward. The Human Betterment Foundation[1] reports that in the last year it has distributed more than 40,000 of its pamphlets in response to requests from 436 college instructors. Of these 431 are teaching in the United States and its territories and five abroad, in Canada, England, and Syria.

VIENNA

(FROM OUR OWN CORRESPONDENT)

PSITTACOSIS IN CAGE-BIRDS

FIVE years ago, when there was an epidemic of psittacosis in Germany, quarantine was enforced upon all birds imported into Austria; the danger was then believed to be confined to parrakeets from South America. Occasional patients were suspected of having the disease, when they were known to have been in contact with parrakeets, but nothing could be proved and they all recovered. Prof. Eppinger, however, has recently had in his clinic a woman suffering from pneumonia of unusual type, the severity of which was out of all proportion to the mild symptoms. There was also a kind of "migration" of the pneumonic foci which aroused the professor's suspicions, as he had had the opportunity a few years before of observing 25 cases of psittacosis in the Rhineland. This patient had also kept two parrakeets. On the twelfth day specimens of blood and sputum sent to the Institute of Veterinary Infections were reported as giving positive reactions for psittacosis, and Prof. Gerlach, the director of the institute, succeeded for the first time in cultivating the virus from the blood and sputum. The patient had meanwhile recovered, though she was still in quarantine. The two birds had now died, but the authorities were able to exhume the bodies; both gave positive reactions for psittacosis. The shop was traced that had sold the parrakeets and orders were given for the destruction of its entire stock—176 birds in all, including 20 canaries, some forest birds, and 2 birds of paradise—and for disinfection of the premises. The majority of these birds were found after thorough examination to be infected, and among them all the canaries.

This case was reported by Prof. Eppinger and Prof. Gerlach before the Gesellschaft der Aerzte in Vienna, and in the discussion it was pointed out that the bird-fancier's shop had been infected in spite of the quarantine restrictions. The only safe precaution was to keep birds that had been reared in the country and to avoid those that had been imported. The public should refrain from too intimate contact with any cage-birds and these should have a prompt examination at the first sign of illness. With these measures it should be easy to quell if not to prevent entirely an outbreak. All cage-birds seem liable to contract the disease; its onset is never spontaneous, for cross-infection can always be proved. Strict cleanliness is as important in these pets as in dogs and cats, to ensure their health and to prevent the spread of disease to their owners.

A MUSEUM OF ELECTROPATHOLOGY

In concentrating the medical institutes and laboratories within the buildings of the old General Hospital, two extensive wards of the former psychiatric departments have been converted into a museum for electropathology, where there is ample room for lectures and demonstrations. This collection of specimens, which owes its existence to the unceasing efforts of Prof. Stephen Jellinek, has hitherto been seriously handicapped by lack of space. The new institute contains a large amount of very interesting and instructive material on the physiology and pathology of the effects of electricity on living organisms. It is the only museum of its kind, and during its 35 years it has attracted a large number of visitors to Vienna, engineers as well as physicians. It contains many unique specimens, collected from all parts of the world, and the results of numerous scientific investigations which have been made in the institute—for example, methods for prevention of electrocution, the improvements in the safety of electric apparatus, the problem of markings after the discharge of a current. The museum will be concerned with the following subjects: the effects of lightning, protection against accidents, electricity in the army, in treatment, and in forensic medicine. Regular courses, chiefly for post-graduates, will be held in the museum by Prof. Jellinek.

BUDAPEST

(FROM OUR OWN CORRESPONDENT)

THE LEX VENEREA

THE foundations of the Bill called the Lex Venerea have been laid during the past two years by a committee of the National Public Health Association under the presidency of Prof. Edward Neuber, ministerial commissioner for the prevention of venereal disease. Similar laws and their effects in other countries have been carefully studied and the Bill has been adapted from these to meet the special needs of Hungary. It makes treatment compulsory and provides for the discovery and treatment of all infected persons. The Minister of the Interior will be authorised to demand serological and other examinations, and the Bill contains an innovation, the "sanitary control," enforceable against women as well as men. Prostitution becomes illegal, brothels

[1] Suite 321, Pacific Southwest Building, Pasadena, California.

and similar institutions are to be abolished, and the police will be ordered to combat the activities of street-walkers. Anyone who exposes another to the risk of infection will be guilty of a misdemeanour and if infection takes place will be very severely punished. There are heavy penalties also for those who marry while still infected, and the law enforces a medical consultation—though not an examination—before every marriage. Physicians are obliged to give written as well as oral instructions to their patients and to report any who suspend or discontinue treatment. They must also notify any known source of infection. Advertisements and treatment through correspondence are forbidden. Steps are to be taken to instruct young people in the dangers of venereal diseases.

LONG LIFE

Nonagenarians have been called into consultation in an effort to discover the causes of longevity, and questionnaires have been sent by the Hungarian Statistical Bureau to all in the country over 90. These old people, of course, are the best authorities on the subject, and they have been asked to answer 63 questions about their heredity, environment, and mode of life. Some of these relate to the age, financial status, and health of their parents and grandparents, others to their own health, physique, diet, exercise, and sleep. The questions go into some detail about such subjects as the number of meals and whether these are meat or vegetarian; the partiality to tobacco or alcohol, and the nature and extent of indulgence; the length of sleep, time of rising, hours of work in the past and at present; and whether the surroundings are congenial. The part of the house in which the nonagenarians live is considered important, for four-fifths of the inhabitants of Budapest live in flats, most of which are five stories high. The conclusions of the Statistical Bureau will soon be published in the press for the benefit of the public.

After protracted negotiations and much expert advice the municipality here has made a contract with the Belgian firm Union Minière du Haut Katanga. Budapest will buy outright 1500 mg. of radium and hire 3242 mg. A cheaper offer had been made by an Austrian firm but it could only deliver the same amount in five monthly instalments and would not lend any; so its offer was declined.

The Budapest Health Resort Committee has received the grand prix given by the bureau of the World Exhibition held last summer in Brussels. It was awarded for the exhibit of modern bathing facilities and is much valued on account of the keen competition that there was from all parts of the world.

IRELAND

(FROM OUR OWN CORRESPONDENT)

THE IRISH HOSPITALS SWEEPSTAKES

THE draw for the seventeenth of the Irish Hospitals Sweepstakes was held at the Mansion House, Dublin, last week. The total receipts from the sale of tickets was over £1,400,000, of which the share to be handed to the National Hospital Trustees will be approximately £467,500. The sum is an increase on that which was received at the sweepstake on the Cambridgeshire last November, but less than that at the sweepstake on the Grand National a year ago. The total sum which has been collected for hospitals in the seventeen sweepstakes since November, 1930, is approximately nine and a quarter million pounds. It was announced at the draw that the Minister for Local Government and Public Health had now given his approval to the scheme for the endowment of medical research put before him by a representative body of those interested in medical science, and that only certain legal formalities had to be gone through before the first grant would be available. It is understood that the council to control the scheme must be given legal status as a registered association before moneys can be granted to it by the Minister. It is expected that, as soon as registration is effected, a grant of some £10,000 will be immediately available.

PROVISION FOR CARE OF SANE EPILEPTICS AND MENTAL DEFECTIVES

The Irish division of the Royal Medico-Psychological Association is trying to impress the Minister for Local Government and Public Health with the need for provision of care and treatment for mental defectives and sane epileptics. At present many of these unfortunate classes are either in mental hospitals or in district hospitals, in neither of which can they get curative treatment or educational care. The joint committee of Grangegorman Mental Hospital has recently passed and circulated a resolution in support of the activities of the Medico-Psychological Association, adding its opinion that "the establishment of suitable institutions or centres for the care and treatment of these afflicted classes would result in a saving to the community by reducing the number of admissions to mental hospitals and prisons, whose inmates are to some extent recruited from these sources." The committee further asks that the coöperation of medical officers of health and of school teachers should be sought in order to collect information as to the mentally defective children throughout the country who would be capable of education and improvement under persons specially qualified to deal with such cases.

DR. JOHN MILLS

The death of Dr. John Mills, resident medical superintendent of Ballinasloe Asylum, occurred in Dublin recently after a long illness. Dr. Mills graduated from Dublin University as M.B., B.Ch., B.A.O. R.U.I. in 1890. After a short period as house surgeon in the National Eye and Ear Infirmary, Dublin, he decided to practise in lunacy and went as clinical assistant to the Richmond Asylum in Dublin, and thereafter devoted himself to the care of the insane. Almost his whole professional life was spent in Ballinasloe, first as assistant medical officer, and for some fifteen years past as medical superintendent. Ballinasloe is in an out-of-the-way part of the country, and asylum practice is often detached from other branches of medical practice. But Mills became one of the best known, most trusted, and most loved members of the profession in Ireland. He was active in every matter of medico-political interest. He was for many years a member of council of the British Medical Association and a member of the Irish Medical Committee. When, about 1912, the interests of the medical profession appeared to be threatened by the National Health Insurance Act, it fell to Mills's lot to organise the profession of the province of Connaught, and despite the pressure of his official duties, he found time to visit almost every medical man in two counties. He was one of the most active members of the Irish branch of the Medico-Psychological

(*Continued at foot of opposite page*)

CORRESPONDENCE

TREATMENT BY PROLONGED NARCOSIS

To the Editor of THE LANCET

SIR,—I have read with great interest the leading article on treatment by prolonged narcosis in your issue of March 21st, which has done a great deal to clarify the position with regard to the dangers and efficacy of the treatment. There are one or two points of considerable importance that have not yet been sufficiently stressed. As your article suggests,

"there is no precaution, no routine procedure in their administration (i.e., that of malariotherapy and prolonged narcosis) which can take the place of special experience in their use, or good clinical judgment in selecting cases and supervising the course of the therapy,"

and I believe that much of the present confusion is due to neglect of these fundamental precautions. The method, which at its best is a difficult one, requires expert supervision and keen powers of observation for the detection of early danger signs if fatalities are to be avoided, and to be of therapeutic value and free from risks it should never be undertaken by the wholly inexperienced.

In this connexion it is interesting to note Oberholzer's criticism of Müller's comprehensive review. He observes that amongst the 17 authors whose work Müller summarised there was only one (Stuurmann) who had at his disposal a material of more than 50 cases, the others having published results on work which frequently embraced fewer than 20 cases. These workers were for the most part inexperienced in the management of prolonged narcosis, and their results as one might expect, showed a proportionally larger number of catastrophes and failures. This unfortunate tendency on the part of over-zealous psychiatrists has no doubt to some extent contributed to bringing the method into disrepute.

If a plea should be necessary for a form of therapy that has proved of undoubted value in many forms of mental disorder it would be not only for caution in applying the method, but also for caution against hasty condemnation, based on results in such series of cases. On the other hand, as you point out, the treatment can be carried out in the vast majority of cases without a hitch, if the physician has thoroughly familiarised himself with the method beforehand, and has realised that no routine procedure or set rules, but only the condition of the patient during treatment, must be his guide. As regards dosage it is impossible to generalise; each case must be treated according to its own particular requirements. Although the "mitigated" form of narcosis, where not more than 4 c.cm. somnifaine is used per diem, may be successful in many cases, it will be found that larger quantities (up to 6 c.cm.) are often required for the treatment to be efficacious. In the 107 cases reported by Muriel McCowan and myself the average dose in 24 hours more often than not exceeded 4 c.cm. in 24 hours. The dosage, however, varied so much from one individual to another that it was found impossible to lay down any definite rule. Again, most workers who have given insulin a serious trial as a protective against the toxic risks speak favourably of its effect in this direction. Thus several Scandinavian workers (Östlind, Gjessing, and others) encountered fewer complications with the use of insulin than without, whereas glucose alone made but little difference.

Whatever theories of narcotic action may be held there can be no two views about the benefit obtained by combating rationally the state of severe ketosis which arises during the course of prolonged narcosis.

I am, Sir, yours faithfully,

ROLF STRÖM-OLSEN.

Runwell Hospital, Essex, March 25th.

(*Continued from previous page*)

Association. He was a very progressive alienist, and indefatigable in his attention to the welfare and comfort of the sufferers committed to his care. To them and to their relatives he was more than a doctor, he was a friend in whom they trusted. His death is a grave loss to the poor of the counties of Galway and Roscommon, as well as his colleagues in the profession the good repute of which he did much to enhance.

THE NUTRITION QUESTION

To the Editor of THE LANCET

SIR,—The thanks of your readers are due to Dr. Hutchison for provoking a discussion on this subject in your columns. Its importance is so great that a statement of certain facts may be permissible even if I repeat something of what I said at a recent meeting of the Royal Society of Medicine (see THE LANCET, Feb. 1st, p. 258). As Dr. Hutchison points out, one of the difficulties is the lack of definition of terms that are frequently employed.

1. It is certain that on the average children of the well-to-do are for their age taller and weigh more than those of the poorer classes; in fact, the grade in society is indicated by the amount of growth, as appears from Elderton's figures. Public school boys are taller for their age now than they were 50 years ago. The evidence is in favour of these differences being due to the presence or absence of growth factors in the food, though heredity also plays a part.

2. When the average height is compared with the average weight this relation, which we look upon as the best measure of "general nutrition," is the same for all classes. This applies to public school boys now and 50 years ago (Roberts), to elementary and other school-children in this country observed by Greenwood, Fleming and Martin, Elderton, and to children in America observed by Baldwin and by Benedict and Talbot, in Germany by Camerer, in Denmark by Bierring, and in Sweden by Nylin.

These two facts are well known, but perhaps their combination has not been sufficiently emphasised. Riches tend to produce giants, poverty to produce pigmies; both giants and pigmies are on the average equally well formed. The height/weight relation is an excellent measure of under or over-nutrition (Dr. Hutchison's terms) of the *individual;* but cannot be used to distinguish the classes of society. The problem remains whether it is a disadvantage to be short. Dr. Hutchison suggests that it may not be and it was Prof. A. E. Boycott[1] who wrote in the Osler Memorial volume "on the importance of being rather small," applying this to man as well as to other organisms. On the other hand, Sir John Orr[2] has defined as the standard of health "a state of well-

[1] Contributions to Medical and Biological Research, New York, 1919, i., 226.
[2] Food, Health, and Income, London, 1936.

being such that no improvement can be effected by a change in the diet." On this definition, which many would agree with, poor children are not perfect in health though this does not mean that they are "starving or even suffering from such a degree of ill-health as is recognised in the term disease."

Clearly additional criteria are desirable, such as are given by dynamometer, equilibration tests, and hæmoglobin determinations now being investigated by Dr. H. E. Magee[3] at the Ministry of Health. Then there is the incidence in children of those diseases where nutrition plays a part, as dealt with by Orr. If we view the evidence so far obtained, we must surely admit that the health of poor children could probably be improved by adding certain substances to their diet. This would not mean that the diet of adults should be increased, as in all classes of society they tend to eat too much already; hence the diabetic and cardiovascular diseases that Dr. Hutchison and all of us deplore.

I am, Sir, yours faithfully,

London, W., March 27th. E. P. POULTON.

To the Editor of THE LANCET

SIR,—Dr. Neustatter's experience, as recorded in his letter in THE LANCET of March 21st, is probably unique. Much as one deplores the existence of poverty—and, personally, I should like to see the State provide every man, woman, and child in this country with food and other bare necessities of life—it is not a fact that poverty, per se (other than actual starvation, which fortunately need not exist at the present day), is a cause of malnutrition, as gauged by Dr. Neustatter's standard—viz., under-weight, under-height, pallor, poor posture, baggy eyes, poor muscular tone, and prematurely senile appearance. He finds 70 out of 240 boys examined by him in the poor districts of the East End of London to be of such poor physique. I doubt if anyone else has met with similar experience. I have examined many thousands of children in similar districts of London and have not found any considerable number having the standard of unsuitable physique given by Dr. Neustatter. On the other hand one not infrequently meets with such poor physique among the pampered children of the well-to-do. I have only very recently, in the course of a medical inspection of school-children in the East End, seen two children whose fathers were unemployed, but each of them looked a picture of health. They were above the average weight and height, had rosy cheeks, and were healthy in every respect.

I am, Sir, yours faithfully,

Harley-street, W., March 24th. W. M. FELDMAN.

To the Editor of THE LANCET

SIR,—As a public health officer, whose work is mainly concerned with infants and children the vast majority of whom must be termed normal, I feel bound to express my indebtedness to Dr. Hutchison for pointing out that nutrition may be regarded as the public health "stunt" of the moment, and for emphasising the dangers of over-nutrition, to which some of us in the public health service may have unwittingly exposed those children brought for our advice.

If we have erred in this way, it must be due to the fact that we followed too literally the advice given us by the physiologists and specialist workers in nutritional fields, and emphasised year after year in the annual reports of the chief medical officer of the Ministry of Health. We have been insistent to parents on the importance of an adequate supply of milk (say) not less than one pint per day—Sherman advocates two pints for optimum calcium intake—and of a regular supply of the so-called protective foods, including eggs, green vegetables, and fruits. We also knew that sugar protected against starvation, but had been warned of the dangers of a high carbohydrate diet. We had read of such experiments as Corry Mann's, where the addition of a regular daily milk ration in addition to a *good* basic diet—better in itself than many children get in the usual way—caused a more rapid growth and increase of physical well-being than in the control groups, and drew our conclusions accordingly. If we had advocated sugar as a protective food, certainly our advice would have been cheaper to carry out; the stumbling block in an enormous number of homes to an increased intake of milk, &c., proved to be the cost, and the Government, giving recent recognition to this fact, introduced the milk scheme for school-children, and therefore some millions are now being supplied with *one-third* of a pint extra per diem. If, on the same principle, a scheme for the cheap supply of the other protective foods were introduced so that their consumption were enormously increased, to what unknown dangers, brought on by this possible over-nutrition, does Dr. Hutchison suggest our children would be exposed?

If the dangers of over-nutrition in this connexion are rather vague, those of under-nutrition are certainly much clearer. Sir John Orr takes three characteristic signs of malnutrition in children to be rickets, bad teeth, and anæmia, all of which are widespread in the lower income groups, and all of which are directly affected by diet. "It is most interesting," he writes, "to note that these diseases and stunted growth are attributable to lack of those dietary factors—viz., first-class protein minerals and vitamins which are the constituents of the diets shown to be deficient in the lower groups." The common respiratory disorders, and those arising in connexion with whooping-cough and measles, are also of much more serious import in the lower income groups than in the higher groups.

With regard to the question of physique, Dr. Hutchison suggests that the "smaller and more wiry type fits in better with the conditions of urban life and a machine age." Presumably also it is this smaller and more wiry type which is rejected as physically unfit for the Army to the extent of between 50 and 70 per cent. If it is true, however, that this type may fit in better with our present state of civilisation, then we should rightly deplore the fact that reports of school medical officers from all over the country for many years past have shown a consistently slow but steady increase in the average weights and heights of school-children at all ages. It is true that public school boys are still bigger and heavier than elementary school boys at corresponding ages, but, on the other hand, the elementary school boy is now up to the standard of the secondary school boy of a generation ago. Does this mean that those fitted for the "urban life and a machine age" are likely to become fewer in number?

Dr. Hutchison summarises the purport of his paper as a protest against the pessimistic view that defective nutrition is prevalent in this country and the optimism which believes it possible to bring about a great improvement in the public health by an alteration in the national diet. Some of us may

[3] Proc. Roy. Soc. Med., 1935, xxviii., 713.

find it difficult to acquiesce in this attitude after reading two of the most recent summaries, Sir John Orr's "Food, Health, and Income" and Sir Robert McCarrison's Cantor lectures.

I am, Sir, yours faithfully,

V. FREEMAN,
Assistant Medical Officer of Health Heston and Isleworth.

Hounslow, March 25th.

FOOD PRODUCTION

To the Editor of THE LANCET

SIR,—It is suggested in your summary (March 21st, p. 681) of Sir John Orr's survey of nutrition that there are now "greatly increased powers of producing food." What, if anything, has happened in recent years to enable farmers to produce much more food per acre at little extra cost to themselves or the public—except, perhaps, in the case of poor grasslands? In 1922 a leading authority on the subject, the late Sir Henry Rew, said: "Within the past thirty years not only have many agricultural stations and colleges been established, but many millions of public and private money have been spent in promoting agricultural education and research. The result of this expenditure cannot be said to be very apparent in the statistical records of output."

I am, Sir, yours faithfully,

Manor-fields, Putney, S.W., March 21st. B. DUNLOP.

SCURVY IN THE ADULT

To the Editor of THE LANCET

SIR,—In your last issue (p. 710) Dr. Archer and Dr. Graham have indeed made good use of the case of scurvy which came under their care. There is no doubt that scurvy is rare in the voluntary hospitals of this country. On the other hand, it is not quite so rare in the local authority hospitals which deal almost exclusively with the sick poor. During the last four years I have seen at least half a dozen typical cases of scurvy of varying degrees of severity. I have no doubt that my colleagues in municipal and poor-law hospitals have had similar experiences. I find that the patients are mostly elderly people living alone on a small pittance.

I am, Sir, yours faithfully,

W. A. RAMSAY,
Medical Superintendent, Crumpsall Hospital, Manchester.

March 30th.

OXYGEN ADMINISTRATION

To the Editor of THE LANCET

SIR,—In the annotation on oxygen tents on p. 730 of your last issue you point out that A. L. Barach recommends a flow of 6–8 litres of oxygen per minute with a tent that is not very airtight. Dr. Poulton uses 2–3 litres per minute and makes his tent more airtight. One of the main advantages of the tent is that it allows this great reduction of oxygen. If we are going to use 6–8 litres per minute a simple open box-shaped face mask is all that is required. With this we find it is possible to maintain an alveolar oxygen pressure of 60 per cent. with a flow of 6 litres per minute if a single catheter is placed 3 in. in the nasal cavity. If 8 litres per minute is used the catheter need not be within the nasal cavity but just outside.

This box mask may be made from thin cardboard; its length is 6½ in., breadth 4¾ in., and depth 2½ in. Its long axis lies in the long axis of the face and the eyes look over the top which is closed except for the entry of the catheter. On the back of the mask there is a triangular opening, lined with lint, into which fit comfortably the nose and mouth. The bottom of the mask is freely open to the air at a space of 12 sq. in. (4¾ by 2½). The capacity of the mask is about 1000 c.cm. and the patient breathes the mixture of oxygen and air from this cavity. A flap at the lower end of the front side could be raised when food is taken.

The apparatus is simple to make, very light and comfortable in use, and it does not get overheated.

I am, Sir, yours faithfully,

London, N.W., March 28th. J. ARGYLL CAMPBELL.

SOCIETIES CHARITABLE AND UNCHARITABLE

To the Editor of THE LANCET

SIR,—In writing to thank you for the valuable article in your issue of March 14th under this title, may I point out a remarkable legal anomaly. Christian Scientist parents are liable to prosecution and punishment for fatalities caused by their wilful neglect to supply their children with such a treatment as antidiphtheritic serum, for example, the great value of which, when given in time, has been very generally recognised by the medical profession for some forty years. The so-called antivivisectionists, to be logical, should be Christian Scientists or its equivalent; for they cannot make systematic use of modern medical treatment without availing themselves of knowledge obtained through physiological, therapeutic, and bacteriological experiments on animals.

Yet it appears to be legal for antivivisectionists, with no medical qualifications, to spend tens of thousands of pounds yearly in trying to persuade parents to withhold illegally such treatments from their helpless children; largely by means of propaganda including the aid of "harrowing descriptions and illustrations . . . in many cases calculated to deceive the public," to use the words of the 1912 final report of the last Royal Commission, in reference to shops, of which the then Home Secretary in reply to a question in the House of Commons was reported in the *Times* of June 11th, 1912, to have said: "I regret that I have no power to prevent such displays."

Would it not, therefore, be of importance to obtain the present Home Secretary's opinion on the advisability of ending this anomalous state of affairs, which has now reached a scale that it is a menace to public health?

I am, Sir, yours faithfully,

London, March 25th. LEONARD ROGERS.

EPILEPSY AND ALLERGY

To the Editor of THE LANCET

SIR,—It seems necessary to take a wider view than that taken by Dr. Oriel and Drs. Costello and Fox to explain the coincidence of epilepsy and asthma or migraine. The allergic side appears to be but a part of the whole mechanism which is a chain of emotional, neurological, chemical, and other factors. The psychological is just as important as the allergic factor in the problem. I should like to illustrate this by the case of a man whom I have had under my care.

This patient when a boy lost his mother and, since his father had to travel abroad on business, was sent to a boarding-school. The head master of this school was a sadist of the worst order and flogged the boy every day. Under this treatment the patient started to develop major epileptic fits—there does not appear to be any

doubts as to the genuineness of the epilepsy—and these became so marked that the father was informed and removed him to another school. At this new school the epilepsy disappeared but was replaced by migraine. He suffered from this until puberty when the migraine was replaced by attacks of depression which occurred in the spring (when his mother died) and elation which occurred in the autumn. These attacks gradually increased in severity until he was unable to work more than six months in the year. He came under my care about a year ago and was treated by psychotherapy. Last autumn was *the first time for fifteen years* that he did not have an attack of elation, and this spring he has, so far, failed to have his usual depression. His environment has been unchanged so that no factor other than the treatment can be found to have caused the disappearance of his symptoms.

I have recently seen a boy aged 14 years who complained of asthma, minor and major epilepsy, and headaches (which lacked the symptoms of typical migraine). The epileptic attacks started when he was aged 6 years and sent to England to school while his parents stayed abroad. He was under the care of a master who used to hit him a great deal, and was very unhappy. The asthma started when his parents visited him and he was not allowed to leave with them. It was controlled by allergic factors also. I had no opportunity to treat this boy.

It seems possible to explain the relation of emotion to epilepsy and migraine by postulating that emotion is a point of cortical excitation which is limited by inhibition. If the excitation overcomes the inhibition it can spread over the cortex either as a slow wave, which is migraine, or as a sudden wave, which is epilepsy. Whether asthma is due to this wave of excitation penetrating the hypothalamic regions it is difficult to know. In manic-depression the excitation (emotion) is not allowed to sweep over the cortex but is isolated. The allergic factors such as occur in asthma apparently stimulate one of the links of the chain between the highest cortical units and the bronchial musculature. It is only by postulating some such mechanism as this that one can explain the relief of symptoms by such diverse means as psychotherapy, drugs (such as Luminal), and desensitisation.

I am, Sir, yours faithfully,

CLIFFORD ALLEN.

Harley-street, W., March 30th.

CARCINOMA OF THE CERVIX IN NULLIPAROUS WOMEN

To the Editor of THE LANCET

SIR,—In that useful little book the "Early Diagnosis of Malignant Disease," by Donaldson, Cade, Harmer, Ward, and Edwards, recently published, reference is made to the early diagnosis of carcinoma of the cervix and it is stated (p. 24) that "carcinoma of the cervix is found solely in patients who have had at least one child." At the Marie Curie Hospital 115 cases of carcinoma of the cervix occurring in women who have never been pregnant have been treated. In some of these, unfortunately, only temporary palliation was possible because the general practitioner, believing that carcinoma of the cervix never occurred in nulliparæ, had treated them for some months with douches, &c., before sending them to hospital.

I am, Sir, yours faithfully,

E. HURDON,
Director, Marie Curie Hospital.

Fitzjohn's-avenue, N.W., March 20th.

A QUESTION OF PROFESSIONAL CONFIDENCE

To the Editor of THE LANCET

SIR,—Surely this is a very simple matter? Dr. A was quite right in conveying the information to his patient of her maid's complaint. Also, there is no reason why he should refrain from scrutinising the case sheet in the hospital. But if he took care to intimate to the mistress that a more tactful dismissal would be better, he would have saved a lot of trouble. The whole situation seems to have arisen, not through any breach of professional etiquette on either the doctor's or the hospital's part, but merely through a lack of a little of the tact and savoir-faire of which every general practitioner of repute is, or should be, possessed. I am, Sir, yours faithfully,

March 30th. M.R.C.S.

FOTHERGILL TESTIMONAL FUND

THE following is the fourth list of subscriptions to the testimonial to Dr. E. Rowland Fothergill received in response to the letter published in the *British Medical Journal* and *The Lancet* of Jan. 18th:—

Amount previously acknowledged, £967 8*s.* 6*d.*
Herefordshire Local Medical and Panel Committee, £15 15*s.*; Hull Local Medical and Panel Committee, £5 5*s.*; Sir John Atkins (London), £5; F. J. Gomez (South Petherton) and S. Hunt (Spondon, Derby), each £1 1*s.*; Dorset Local Medical and Panel Committee, £10 10*s.*; A. E. Hodder (Stafford), £2; Staffordshire Panel Committee, £20; C. Frier (Grantham), £2 2*s.*; Renfrewshire Panel Committee, £3 3*s.*; F. A. Roper (Exeter), £2 2*s.*; E. A. Gregg (London), £1 1*s.*; Burnley Panel Committee, £5 5*s.*; Lancashire and Cheshire Branch, B.M.A., £10 10*s.*; G. W. Beresford (Hove) and S. Fraser (Hove), each £1 1*s.*; Cleveland Division B.M.A., £5 5*s.*; Edinburgh Panel Committee, £2; Anonymous, 10*s.*; East Lothian Panel Committee, £2 2*s.*; Members and Staff of Brighton Insurance Committee, £5 5*s.*; Hastings Local Medical and Panel Committee, £21; A. E. Larking (Beckley), £1 1*s.*; Burnley Division B.M.A., £5 5*s.*; J. Livingstone Loudon (Hamilton), £2 2*s.*; Manchester Local Medical and Panel Committee, £105; N. Kemp (York), £1 1*s.*; Blyth Division B.M.A., £3 5*s.*; E. D. Broster (Wirksworth), 10*s.* 6*d.*; Lanarkshire Panel Committee and Hertfordshire Local Medical and Panel Committee, each £10 10*s.*; J. M. Martin (Cheltenham), £1 1*s.*; L. A. Johnson (York), £1; Leeds Panel Committee, Nottingham Panel Committee, and Bournemouth Panel Committee, each £5 5*s.*; Barrow Panel Committee, £2 2*s.*; Cheshire Local Medical and Panel Committee, £50; Greenock Local Medical and Panel Committee, £5 5*s.*; Huddersfield Local Medical and Panel Committee, £2 2*s.*; North Riding of Yorkshire Panel Committee, £15; Morpeth Division B.M.A., £3 10*s.*; Surrey Local Medical and Panel Committee, £5 5*s.*; M. Du Bois Ferguson (York) and C. Charnock Smith (Hastings), each £1 1*s.*; Walsall Local Medical and Panel Committee, £3 3*s.*; Birmingham Panel Committee, £26 5*s.* Total, £1361 12*s.*

Cheques should be made payable to the Fothergill Testimonial Fund, and addressed to the Treasurer, Fothergill Testimonial Fund, British Medical Association, B.M.A. House, Tavistock-square, London, W.C. 1.

ROYAL NORTHERN HOSPITAL.—At the annual council of governors of the Royal Northern Group of Hospitals held on March 26th it was stated that the new section to St. David's wing had brought the bed complement of the Group up to 480, but unfortunately 43 of the beds were closed through lack of funds. The number of in-patients treated last year was 6295, and the out-patient attendances numbered 360,637. The casualty department, which is the Islington war memorial, received 18,956 patients, and the X ray department had 18,614 attendances, an increase of over 3000 on 1934. The expenditure amounted to £122,495, an increase of £6212, and the general debt of the hospital now stands at £139,460. An appeal for £350,000 will be launched next year, of which £138,000 will be devoted to maintenance and £212,000 towards buildings. The Zachary Merton trust has also offered £20,000 to provide a new section for early convalescent cases at Grovelands, Southgate.

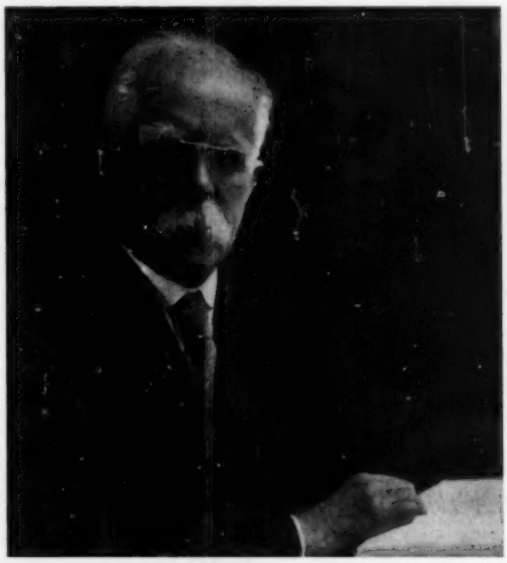
OBITUARY

SIR ARCHIBALD EDWARD GARROD, K.C.M.G., M.D., F.R.S.

CONSULTING PHYSICIAN, ST. BARTHOLOMEW'S HOSPITAL; LATE REGIUS PROFESSOR OF MEDICINE, UNIVERSITY OF OXFORD

THE death occurred at his house in Cambridge on March 28th of Sir Archibald Garrod, a leading figure for the last 40 years in scientific research and clinical medicine. We owe to Dr. Hugh Thursfield, his friend and colleague, the following sketch of his career and fine tribute to his great qualities.

Sir Archibald Garrod, the distinguished son of a distinguished father—Sir Alfred Garrod—has passed away in his eightieth year, and the medical profession has to mourn the loss of one who was not only a pioneer in a somewhat obscure field of research but was a source of inspiration and an example of accurate and clear-cut thought to many generations of medical students. He was born, so to speak, in the profession, and married into it, for his wife was the eldest daughter of Sir Thomas Smith, in his day the best-loved surgeon in London.



[*Photograph by Lafayette*

SIR ARCHIBALD GARROD

Marlborough and The House at Oxford preceded Garrod's entry to the medical school at St. Bartholomew's Hospital, where after holding the usual house appointments he became successively a teacher in the school, a tutor and registrar, and assistant physician on the staff. For this appointment, the immediate goal of his ambition, he had to wait more years than usually fall to the lot of the aspirant, for at that epoch St. Bartholomew's had a galaxy of medical talent, most of the members of which had reached the staff at an early age, and so blocked the path of Garrod and his contemporaries to promotion. It was therefore only after years of preparation that he attained his ambition. These years were busily employed in the day-to-day work of a medical school teacher, and in research work, which was mainly devoted to chemical investigations of the colouring matters, normal and abnormal, of the urine, a subject, which as he once said to the present writer, "lay on the very fringe of knowledge." His work in this field led to an appreciation of his merits, which at that time was probably higher on the continent, and especially in Germany, than at home, where outside St. Bartholomew's, and a small ring of scientific researchers, he was comparatively unknown.

It was during these years of waiting in connexion with St. Bartholomew's that he became attached to the staff of the Hospital for Sick Children, Great Ormond-street, in the work of which for the next twenty years he took the keenest pleasure. There also came a period of waiting before he became a physician in charge of beds, but in later years he used to regret occasionally the loss of the opportunity of out-patient work, which with all its limitations and irritations, still offers an unequalled training to the clinician. Thus it happened that he was already past middle age before his reputation had spread beyond the walls of the two hospitals he served with so deep a loyalty and devotion. But he then began to enter upon a practice as a valued consultant, which though it never attained the extent of those of a good many of his contemporaries, yet made a demand on his time, owing to his cautious and deliberate accuracy. This involved to some degree the sacrifice of many of the researches he had planned. But though he had thus to relinquish some of his personal activity in these directions, the spirit of research lived in him strongly, and in the years which were to come made him a source of inspiration to many of his younger colleagues and pupils.

The war found him with an established reputation and a grown-up family, only the youngest son being still at school. After serving the first part of the war in England he was appointed consulting physician to the Forces in Malta, where in busy work with a happy band of medical and surgical colleagues and helpers he spent the remaining years of the war. But the war brought him the greatest sorrow of his life. His second son was killed in action in the first year; his eldest son, who had become a doctor, was killed by a shell when working with an ambulance; and his youngest son who had survived a year or more of active service died in Cologne after the Armistice in the plague of influenzal pneumonia which in 1918 and 1919 attacked the Army. These repeated blows deprived him temporarily of energy and resolution, and it was a shadow of his former self which returned to St. Bartholomew's in 1919. However not long afterwards he was asked to take charge of the newly formed medical unit at that school, when he threw himself with reawakened zest and earnestness into work with the scope and aim of which he was thoroughly in sympathy. In the comparatively short time during which he remained director of the unit he was able to draw out the lines of an experiment which in the hands of himself and his successor, Prof. Fraser, has proved entirely successful.

From this post he accepted the succession to the professorship of medicine at Oxford, rendered vacant by the death of Osler. He did so with a characteristic modesty, declaring both in public and still more

emphatically in private that he could think of the names of several men better fitted than himself. At the same time he could feel that the work which he had been called to do in the unit at St. Bartholomew's was fairly started, and all his inclination was now to leave its development to younger men, and himself to embark on the "great adventure" of attempting to follow his admired and admiring friend, Osler. He could not, as he said, hope to emulate Osler's influence, and was wont, after he had been a short time at Oxford, to assert that in such a post every man must work on the lines which appeared to him to be most productive of good, and that no one should, or indeed could, pursue, in other than the broadest sense, the precise direction of his predecessor.

Others can appreciate the successes and the failures of his tenure of the professorship which he held till 1927, when on reaching 70 years of age he retired. He had in the meanwhile served both his own and all other English universities well on the Universities Commission.

In the meantime his only remaining child Miss Dorothy Garrod had maintained the family tradition of distinction, though in a new field, that of archæological and anthropological research. Sir Archibald—he had been created K.C.M.G. in 1918—and Lady Garrod after leaving Oxford had retired to a house which they had long possessed in Suffolk, but not long afterwards they removed to Cambridge, where their daughter was now, in the intervals of her fruitful explorations in Gibraltar and the Near East, a director of studies at Newnham. Sir Archibald was received with open arms both by the University and Colleges of Cambridge; almost, he said, as if they had supposed him capable of changing Dryden's famous lines:

> *Cambridge* to him a dearer name shall be
> Than his own mother-university,
> Thebes did his green unknowing youth engage,
> He turns to Athens in his riper age.

In this honoured retirement Garrod passed the remaining years of a life which in many respects was singularly happy, cheered by the warmth of his many friendships, clouded only lately by a steadily failing vision; retaining all his old interests, especially in medical and chemical research, and in his own chosen field still an acknowledged master.

Sir Archibald was, in the prime of life when I first knew him, of markedly handsome presence, with a finely shaped head and face, from which looked out dark eyes of an impressive brilliance, which at first sight seemed to promise quickness, vivacity, and perhaps irascibility. Yet with deeper knowledge it became clear that any such supposition was completely incorrect. Of irascibility there was never a trace; even by a momentary irritation he was but rarely overtaken, and never possessed but for a second or two; and quickness of wit, of which he had plenty, was always subdued to a somewhat slow and deliberate utterance, the outcome no doubt of his life-long habit of conscious self-criticism. This characteristic marked also all his teaching and writing, so that the bulk of his written work is comparatively small, but, especially in his volume on the "Inborn Errors of Metabolism," holding "great riches in a little room."

To all those who have enjoyed the privilege of working with Sir Archibald at any period of his active life, but most of all in what were perhaps his two happiest periods, before the war and when director of St. Bartholomew's unit, his death will come as a reminder of a time when his interest and enthusiastic desire to help were a part of their own best and busiest days.

Prof. Francis Fraser writes: "The death of Garrod leaves a gap in the medical profession that cannot be filled. There was no one quite like him. An able, practical physician when the need arose, patients, as he said himself, did not really interest him, and the complex problem presented by an individual who is ill did not really appeal to him for solution. In a patient he saw one symptom only, one abnormality, and on this he would concentrate, thinking about it, reading about it, and experimenting with it, all else ignored. His was the mind of the true scientist and often one wondered, and he wondered also, how he had come to be a practising physician. He was almost an onlooker when he applied himself to the daily task of seeing patients and treating them. This daily task was something that had to be done, a price that had to be paid, for the privilege of contact with the numerous intriguing puzzles that he found and set himself to solve. Often he would spend all morning at a window in the ward testing a urine that presented an unusual colour or smell. The morning's round could be left to others. If he could not find the answer himself he would consult Dr. Hurtley in the chemistry department or seek help from his friends at Oxford or Cambridge.

"Each group of students was to him the raw material in which he hoped to find an individual who would be interested in the search for truth, who would be inspired to see a 'higher medicine' in the problems of the ward, who would perhaps be tempted to ignore the immediately practical and devote his life to 'things that matter.' He would look back on his career as a teacher of undergraduates and pick out those whom he thought he had influenced to think clearly and honestly, and with pride he would name those whose careers he had guided. With these ideals and with these objectives in his teaching, it is no wonder that he welcomed the opportunity of becoming director of the professorial unit at St. Bartholomew's Hospital at the close of the war. In the war he had lost his three sons, and it was with paternal devotion that he moulded the unit and with paternal ambition that he looked forward to the unit giving the stimulus and the opportunities for the advance of clinical science to the next generation of medical men. It was only after careful thought and some misgivings that he left St. Bartholomew's Hospital in 1920 to succeed Osler at Oxford, and it was partly the hope that there he could sow seed on soil uncontaminated by considerations of careers and of utility that persuaded him to leave the unit so soon after its inception.

"At Oxford he found the administration of the medical faculty gave him the opportunities for advancing his plans for 'better medicine,' and it was there that he worked at 'Inborn Errors of Metabolism' and 'The Inborn Factors of Disease.' These books epitomise his medical outlook. He saw that there are problems in medicine that are the field of the clinician and that only the clinician can solve, problems that do not interest the physiologist or the pathologist, but require for their solution the aid of the pathologist, the physiologist, and the chemist. He stoutly maintained that the clinician must have his own laboratories, for only he saw the problems and only he would worry at them and solve them. Garrod's researches were biological, though conceived at the bedside, and few physicians have had the power to eliminate the sociological and

environmental factors that obscure clinical medicine and see the clear biological problems beneath as he did. His critical faculties never sterilised his intellect, his honesty was constructive.

"Inclined to long silences, with bushy eyebrows and gentle voice, he had a personality that claimed attention. What he said was worth listening to and worth thinking about long afterwards, for what Garrod said and what he wrote was always carefully pondered and examined. He could be sarcastic but was never unkind, so when he censured strongly there was good reason for it. The deaths of his sons in the war were blows that affected greatly his private life, and no one can tell how they influenced his work, but he was a scholar in all he said and gentle in all he did, and those who had the privilege of knowing him, lived better and worked better because of him."

There should be added to these tributes certain details in Garrod's professional career. It is true that the bulk of his written work was not large but he had a great gift for summarising, in the form of public addresses, both the bearing of his own researches and the influence upon scientific progress derived from other predecessors and contemporaries. At the Royal College of Physicians of London he delivered the Bradshaw lectures in 1900, taking as his subject urinary pigments in their pathological aspects; he was Croonian lecturer of the College in 1908, his subject being the inborn errors of metabolism, a theme developed in his book with that title, and also in "Inborn Factors of Disease" published in 1931. Lastly, as Harveian orator of the College in 1924 he set out in an eloquent way the debt of science to medicine. All these addresses were published in full in THE LANCET at the time of their delivery, and those who consult them will derive from them both wisdom and pleasure. In 1912 he was Lettsomian lecturer at the Medical Society of London. Here in four lectures he told the story of glycosuria with a wealth of detail, chemical and clinical, while the carefully compiled bibliography displayed erudition and industry. In 1920 he delivered the Schorstein lecture at the London Hospital on the diagnosis of diseases of the pancreas, and in 1923 the Linacre lecture at Cambridge, when he modestly entitled his accomplished delivery as Glimpses of the Higher Medicine. In 1927 he delivered the Huxley lecture at Charing Cross Hospital, taking for his subject the broad theme of diathesis. These various addresses amount to a considerable literary performance and many would like to see them published as a volume. To the *Transactions* of the old Medical and Chirurgical Society, to the *Journal of Pathology*, and to the *Proceedings* of the Royal Society he was also a valuable contributor.

He was elected F.R.S. in 1910 for his work in connexion with errors of metabolism, urinary pigments, and alkaptonuria, and served on the council of the society during 1914–15. He was for some time a member of the Medical Research Council, was an honorary member of many English and foreign foundations, and a member of the advisory committee appointed in 1924 by the Home Secretary to report on the administration of the Cruelty to Animals Act. His services as an examiner in medicine were requisitioned by the Universities of Oxford, Cambridge, Glasgow, Manchester, and Liverpool, and by the English Conjoint Board. He was given an honorary doctorate degree of the Universities of Glasgow, Aberdeen, Malta, Dublin, and Padua, the last distinction giving him particular pleasure as emanting from Harvey's university.

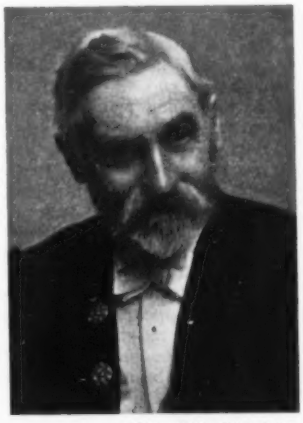
Garrod's claim to admiration and respect is unchallengeable, and regret for his death will be widespread and real.

SIR JAMES SMITH WHITAKER, M.R.C.S. Eng.

LATE SENIOR MEDICAL OFFICER, MINISTRY OF HEALTH

WE announced last week the death at Farncombe of Sir James Smith Whitaker, the medical politician to whose organising powers was due much of the shape which the medical side of the National Insurance Act assumed.

James Smith Whitaker was a Yorkshire man, born in 1866 the son of John Whitaker, of Hawes, and was educated at Manchester Grammar School and Owens College. He qualified as L.R.C.P. Lond., M.R.C.S. Eng. in 1891 and was for a time medical officer in Wye House Asylum, Buxton. He then went into practice in Great Yarmouth and during his ten years in the busy Norfolk town became deeply interested from personal experience in many sides of the general practitioner's life. At that time it had become evident to all who took interest in the practice of their profession that doctors, especially in provincial towns, suffered seriously from the methods of medical clubs. Numerous societies having as their professed objects life assurance arrangements added to their projects medical aid as an inducement to the public to enter their fold. Many of these societies were at bottom nothing but attempts to secure for the public medical attendance at low rates. And where the management of the society remained entirely in lay hands the interests of both medical men and public suffered badly, competent practitioners saw their poorer, and by no means always their poorer patients taken from them and handed over to the ill-paid salaried servants of a society. In Great Yarmouth an active association of this kind was in existence and its operations led Smith Whitaker to consider whether the medical profession could not organise resistance to a movement which was becoming increasingly mischievous to medicine and public alike. He was a local official of the British Medical Association but found that body not to be inspired with what he considered the necessary zeal or the adequate machinery to deal with the scandal. He associated himself with others who held the same view or who for various reasons were disappointed in the policy of the Association, and he became their spokesman at a meeting held in Manchester in 1900. The meeting in Manchester had for its object to consider the need for reorganisation of the Association, especially on the medico-political side, and the reformers were able at an important conference to take such a strong line that the existing authorities of the Association found themselves in sight of a



[Photograph by Elliott & Fry

SIR JAMES WHITAKER

serious break away from their body. The result, however, proved entirely different. A committee, upon which Whitaker sat, was appointed to enter into negotiations with the council of the Association, with the result that not only was the medico-political side of the Association reconstructed, but what was in effect a completely new constitution was introduced, under which the affairs of the Association have since been administered. In the revolution Victor Horsley took the lead, but Whitaker gave effect, through his remarkable ability for draughtsmanship, both to Horsley's principles and his own views. Under reconstruction the Association became a representative body, and Whitaker, who was appointed medical secretary, proved a conspicuous success in the post. He was a tireless worker, a good public speaker, and while always logical in his expositions, combined persuasiveness with severity, and as a tactician he was remarkably subtle.

On the introduction of the first Insurance Bill all these qualities were of the first advantage to the Association and to the medical profession, and the value that they would have to the Government in the many difficulties obviously ahead was recognised by Mr. Lloyd George who made the dramatic move of securing Whitaker's services for the National Health Commission. As for sound reasons the medical profession had just cause to be critical of the details for working contract practice under the National Health Insurance Acts, the acceptance by Whitaker of the post of deputy chairman of the Insurance Commission came as a shock to many—it wore the appearance of a desertion. But Whitaker was a strong man. He knew perfectly well that he would be reproached for going over to the side against which he had been in action, but he knew intimately the evils to which the new legislation was designed to put an end. He knew also how sound were the grounds on which the medical profession resented the Bill in its original shape, and he apprehended with courage and shrewdness that, while obeying what he considered a public call, he could serve the interests of the profession best by directing official attention to the existent evils. It was on those grounds, and with the formal approval of the council of the British Medical Association, that he accepted Mr. Lloyd George's offer. The result was that the medical profession found inside the precincts of the Ministry of Health a well informed and valuable friend.

The war broke out shortly after Smith Whitaker's appointment as vice-chairman of the Insurance Commission and he played an important part in many of the activities set in motion. At the conclusion of hostilities he settled down to his official duties and was an assiduous public servant in a position which gave no appropriate openings for his talents. It seemed as though the recollection of past abuses, which he had been prominently keen in abating, remained always with him; he was a legalist and formalist, and a champion of the practitioner's rights, but he never showed a large conception of the needs of public health. But the good work that he did for medical practice will never be forgotten. He was knighted in 1931, shortly before his retirement from his official post.

THE LATE MR. A. R. TWEEDIE

Two of the late Mr. Tweedie's colleagues have sent addenda to the obituary notice which appeared last week. One colleague writes: "I was associated with Tweedie in various ways and at various times during the past 40 years. He was a man of outstanding ability, among his chief characteristics being his unbounded and untiring energy; and his readiness at all times to assist whenever his advice and help might be sought. It is said that he never sat in an easy chair to read the newspaper or a novel; his time when he was not engaged in carrying out the multifarious duties of his practice being occupied in contributing to the literature of his specialty, in translating, or in reading current medical literature. His aid was never sought in vain; he would throw his whole interest and energy into the elucidation of a correct diagnosis, and this having been made, all his time and thought would be given to affording relief. He was an excellent surgeon, and to his work devoted a whole-hearted enthusiasm; any young men interested in aural surgery found in him a very real friend and helper. His favourite phrase, 'Anything I can do to help, you have only to command me,' conveys the character of the man. He was possessed of a very genial humour, and was an excellent story-teller, and played all his games with the energy that he put into his work."

Another colleague writes: "Tweedie possessed an abounding generosity. He was the most loyal of friends and colleagues. Since the war he kept in touch with all the members of his unit, ever ready to help anyone who was in trouble. A lover of nature; of hills and moors and wild places; of the spring notes of the curlew and the golden plover. His capacity for work was tremendous, but his modesty was such, that in all his labours for the Deaf and Dumb Institute he never let his name appear. A strong man; a robust personality; a good speaker with a ready wit. A man of intense sincerity with a fierce hatred of anything that savoured of selfishness or pretence."

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED MARCH 21ST, 1936

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2453; diphtheria, 1215; enteric fever, 24; pneumonia (primary or influenzal), 1232; puerperal fever, 44; puerperal pyrexia, 116; cerebro-spinal fever, 27; acute poliomyelitis, 3; acute polio-encephalitis, 1; encephalitis lethargica, 8; dysentery, 49; ophthalmia neonatorum, 83. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on March 27th was 6498, which included:—Scarlet fever, 1031; diphtheria, 1111; measles, 2927; whooping-cough, 724; puerperal fever, 17 mothers (plus 12 babies); encephalitis lethargica, 283; poliomyelitis, 5. At St. Margaret's Hospital there were 19 babies (plus 11 mothers) with ophthalmia neonatorum.

Deaths.—In 121 great towns, including London, there was no death from small-pox, 3 (1) from enteric fever, 114 (38) from measles, 4 (1) from scarlet fever, 32 (6) from whooping-cough, 24 (3) from diphtheria, 61 (22) from diarrhœa and enteritis under two years and 86 (19) from influenza. The figures in parentheses are those for London itself.

The mortality from measles has again risen slightly, the figures for the last seven weeks (working backwards) being 114, 105, 84, 88, 78, 58, 34 for the country as a whole, and 62, 58, 47, 38, 18, 14, 13 for Greater London. Manchester reported 8 deaths, Liverpool 7, Salford 5, Leyton, Tottenham, and York each 4, Dagenham, Bradford, and Leeds each 3, no other great town more than 2. Deaths from influenza were scattered over 49 great towns, Liverpool reporting 4, Portsmouth, Birmingham, and Cambridge each 3. Birmingham reported 6 deaths from whooping-cough, Liverpool and Manchester each 3. Deaths from diphtheria were reported from 15 great towns, 3 from Wakefield. West Ham and Liverpool each reported a death from enteric fever.

The number of stillbirths notified during the week was 294 (corresponding to a rate of 43 per 1000 total births), including 49 in London.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Advertisement of Medicines and Surgical Appliances

THE Medicines and Surgical Appliances (Advertisement) Bill was the outcome of the labours of a committee representative of the various interests connected with the trade in proprietary medicines. Their work had been directed towards removing some of the worse abuses in the advertising of proprietary medicines, surgical appliances, and curative treatment. The advertisements which the Bill was designed to control are those which are not only grossly misleading to the public but also tend to bring legitimate proprietary medicines into disrepute. All the principal interests concerned in the proprietary medicine trade had taken part in framing the draft—the manufacturers, the distributors, and the advertisers—and the position of the unqualified practitioners of medicine had received the fullest consideration. The deputation which presented the Bill to the Minister of Health in July, 1935, included representatives of the following organisations:

Advertising Association.
Association of Municipal Corporations.
British Medical Association.
County Councils Association.
Institute of Incorporated Practitioners in Advertising.
National Association of Insurance Committees.
National Pharmaceutical Union.
Newspaper Society.
Parliamentary Committee on Food and Health.
Parliamentary Medical Committee.
Pharmaceutical Society of Great Britain.
Periodical Trade Press and Weekly Newspaper Proprietors Association, Ltd.
Proprietary Association of Great Britain.
Surgical Instrument Manufacturers Association.
Wholesale Druggists Sundries and Proprietaries Association.
Wholesale Drug Trade Association.

The Bill was presented by Mr. A. Duckworth in the House of Commons on Feb. 7th and a summary of its provisions appeared in THE LANCET of Feb. 15th (p. 400).

MOTION FOR SECOND READING

In the House of Commons on March 27th Mr. DUCKWORTH moved the second reading of the Bill. The scope of the measure was, he said, extremely limited. Its provisions had received the support and approval of a large number of bodies, including the representatives of the proprietary medicines trade, the Advertising Association, the County Council's Association, the Pharmaceutical Society, and many other bodies. It was not promoted by any vested interest and it was not intended to discriminate in any way between the qualified and the unqualified practitioner, nor did they believe that it could possibly damage the interests of any religious body or association since such bodies were specifically excluded from the provisions of the Bill. The Bill sought to remove some of the worst abuses that existed in connexion with the advertisement and sale of patent medicines and secret remedies. It also struck at another method which was only, he thought, practised by the unscrupulous person, and that was the method of offering to diagnose and give treatment by correspondence. The existence of the abuses against which the Bill aimed was not, he thought, disputed, and he did not think that anyone would seek to justify those abuses. The Bill was designed solely to give the public some protection against the worst of the forms of exploitation that were practised by fraudulent and unscrupulous persons for their own profit; and even should this Bill become law it would still leave open an enormous field for the activities of the swindler and the cheap-jack. When they considered the state of the law in this country as compared with the protection in this respect given by the law of other countries, particularly in the British Dominions, it might be justly argued against the Bill that it erred on the side of moderation.

The extent and widespread nature of the abuses which were aimed at by this Bill were first made known to the public through the report of the Select Committee of the House of Commons which sat from 1912 to 1914 and reported in August of the latter year. That Committee in their report made some startling revelations as to the fraudulent claims put forward in advertising many well-known patent medicines on the market and as to the ingredients used in their composition. The report laid emphasis on the abuses and dangers to public health inherent in the advertising of claims to cure diabetes, cancer, consumption, and other diseases listed in Clause 1 of the present Bill. The report laid bare the fact that the traffic in that type of advertisement had grown to enormous proportions and produced evidence to show that agencies had been established where the unscrupulous for a sum of money could purchase thousands of names of persons suffering from these complaints. The Select Committee recommended that all advertisements in connexion with these diseases should be prohibited by law, and that was the intention of this Bill. The Select Committee's recommendations went much further than anything contemplated in the present measure. It was true that the report of 1914 was to some extent out of date and that the public had meanwhile received some additional measure of protection through the passing of the Dangerous Drugs Act and the Pharmacy Act. It was also true that reputable newspapers had now established a voluntary form of censorship which excluded the more unsatisfactory type of advertisement; but all newspapers did not come within the scope of that censorship. Examples of the type of advertisement which were still current and which no one could possibly defend were those which claimed to have cures for diabetes and tuberculosis, and which held out by implication the procuring of miscarriage by women. The last named was one of the most harmful and the most fraudulent, because he had been assured by medical opinion that there was no substance known that was in fact effective for this purpose, and if it was effective it could not be so without proving harmful to the health of women.

Efforts had been made in 1920 and in 1931 to deal with these abuses by legislation, but those efforts had proved abortive. The present Bill was of a much more modest character than its predecessors. It represented the greatest measure of agreement that had ever been attained on this problem, and he believed that it would afford the public the minimum amount of protection to which it was entitled. There was no intention, whatever, to discriminate between the unqualified and the qualified practitioner. The removal of the abuses to which he had drawn attention would be as much to the advantage of the unqualified practitioner as to the orthodox medical profession. Orthodox medicine had made enormous strides during the last 100 years, but he recognised the excellent work carried on outside the orthodox medical profession by osteopaths, herbalists, and others. There was no intention in the Bill of placing difficulties in the path of these people. If it could be clearly shown that the Bill did in any way threaten legitimate interests the promoters would be willing to accept amendments.

Captain ELLISTON, who seconded the motion, said the Bill was sorely needed and long overdue. In his experience he had never known any Bill to be so grossly misrepresented as this one. In this Bill the president of the Royal College of Physicians was placed on exactly the same footing as the most humble unqualified practitioner. In early days of the promotion of the Bill it was proposed to give exemption to qualified medical and surgical practitioners, but when they found that there was this feeling about what was called safeguarding the monopoly of the medical profession they said to the British

Medical Association, "Are you anxious for this protection?" and to his surprise the Association replied, "Not a bit." They said, "Place us on the same footing as unqualified practitioners; we ask for nothing more." That struck him as a very remarkable concession. The amendment to which Mr. Lansbury had lent his name said that the Bill "would unjustly penalise unregistered practitioners of various forms of genuine natural healing and would virtually prohibit the employment of many well-tried methods for preventing disease and correcting functional disorders"—in other words that the unqualified practitioner was better fitted to deal with certain conditions than a man who had been trained for the medical profession. The Privy Council through the General Medical Council had laid down what they considered to be the essential requirements of a medical education. When after a minimum period of five years students left medical schools to practise they left behind them chemists, biochemists, biologists, physiologists, bacteriologists, and pathologists carrying on ceaseless research to keep these men abreast of the latest progress in medicine and science. Any educated man knew that most diseases took many varying forms, and that each case demanded individual study and treatment. The patient who interpreted his own condition by the terms of an advertisement might often prevent the discovery of the real disease. It was a common trick of the quack to pick out certain perfectly normal physiological phenomena and to state in these advertisements that these were indications of incipient disease. They thus fraudulently traded on the fears of nervous people, and that was why so much importance was attached by the promoters of the Bill to personal consultation between practitioner and patients. There was not a hospital surgeon in this country but could testify to delayed inoperable cases in which the affected area had been treated with some secret remedy and in which life might have been prolonged or saved by early treatment.

Capt. Elliston said he felt bound to mention the whip that had been circulated to hon. Members to come to the House to-day to defend the pretensions of the gentleman who had offered to the public for many years past an infallible remedy for tuberculosis known as "Umckoloabo." He asked for no greater example of the class of cure which he hoped this Bill would regulate. The report of the Select Committee described him as "a well-known consumption curer who has been denounced in *Truth* for nearly ten years." When the first draft of this Bill appeared in the newspapers this gentleman wrote to all his cases and asked them to write to him (Capt. Elliston) appealing against this very outrageous Bill, which would rob them of their hopes of life. He (Capt. Elliston) received within a few days, less than 18 months ago, 1350 letters from strong supporters of this remedy. He was bound to say that he was considerably shaken, because they gave such assurances of salvation and rescue from death. Finally he put all these letters in a sack and sent them to Dr. Ernest Ward, the secretary of the Joint Tuberculosis Council, and asked for his answer to them. Dr. Ward had not yet been able to complete his investigation of the letters, but he had sent him an interim report. He had so far secured the investigation of 604 cases of which 31 could not be traced; 137 had never been notified as tuberculosis; 122 were in good condition, or fair condition and working; 115 were ill and not working; 62 were desperately ill, some at the point of death; 77 were dead. He had 30 or 40 typical letters written to him less than 15 months ago by unfortunate people who were "cured" and were now dead. The discoverer of this cure had said, "I do not say in my advertisement that consumption can be cured or that consumption is curable, or any such evasive remarks, but I say that I guarantee to cure you if you are consumptive, or to return your money." He did not know whether those 77 people got their money back but if they did it must have been small consolation.

In conclusion Capt. Elliston remarked that if this Bill interfered with the liberty of any subject then all the public health legislation passed by that House came under the same description.

MOTION FOR REJECTION

Sir ARNOLD WILSON moved the rejection of the Bill. He and his friends did not feel that the orthodox medical profession had a monopoly of wisdom; the Bill would tend unduly to restrict the activities of the unorthodox practitioner. The House should pause before it acted on the assumption that most remedies and alleviations not approved by the orthodox medical profession were fraudulent, and that because remedies and treatment were advertised and sold for profit they were therefore deceptive. He agreed entirely that the problem presented by the vast development of advertising in relation to remedies and treatments should be dealt with and if the Minister of Health brought forward a Bill on the lines of that which was introduced last year the House of Commons would give it a patient and respectful examination. Enormous frauds were being perpetrated on the public, but they were not those dealt with by this Bill. Until men and women were able to take independent views and not be misled by propaganda Parliament must protect them as far as it could. But this Bill would do nothing to prevent the credulity of fools. Not one-quarter of 1 per cent. of the money spent on quack remedies in this country was dealt with by the Bill. This Bill did not touch the real problem. It did not touch the cures for asthma, bronchitis, influenza, the common cold, for too much flesh or too little flesh—a very common source of illness—for rheumatism and arthritis, for too little hair on men and too much on women—by no means safe remedies as they saw from scores of cases—for "that tired feeling" at night and in the mornings, shyness and stammering, pimples and skin diseases. He suspected that those who sought these remedies were not persons who had never gone to their local panel doctors, but persons who had not gained relief by orthodox treatment and turned in desperation to other remedies. What was the real remedy? He did not deny that there were evils, but the remedy was to deal with unorthodox practitioners on their own ground. The General Medical Council should accept for the first time in their history—it would be a great decision—the principle that they or the Medical Research Council should accept responsibility for broadcasting on public health at every opportunity without the grudging statement which every medical man who broadcasted at present received from the B.B.C. that he did so at his own risk. The G.M.C. were so frightened of advertisement that they had made it difficult for medical men to broadcast as they should. He would like to see the National Health Insurance Commissioners spend considerable sums of money on sending out leaflets inculcating positive good health instead of presiding over the permanent endowment of ill-health. The campaign for physical education would be useless unless it was accompanied by a campaign in favour of good positive habits of life. The G.M.C. should move with the times. Was the Medical Research Council making the best use of the money at its disposal? Let them have the antidote to quack remedies over the wireless. "Drugs alone will not cure you. You should go to your doctor early." Syphilis and gonorrhœa deserved far more serious attention than they got. It was a shameful fact that there had been no improvement in the death-rate in this respect for the last 10 years. Let the Minister tackle epilepsy seriously. The Eugenic Society stated that the proportion of mental deficiency in the United Kingdom was four times as great as over the northern parts of Europe. That should make us pause. The remedy was not this Bill, but a bold programme of remedial measures. If the Bill became law it would provoke fruitless,

barren, bitter, and purely negative controversy, and would tend further to exacerbate public opinion which was inclined to regard the medical profession with a suspicion which was unfair and unjust.

Mrs. TATE seconded the motion for rejection. She said the Bill would not do what it was designed to do because it was full of loopholes. How was it proposed to prevent the wireless broadcasting from a foreign station in English of advertisements of patent medicines? She deeply sympathised with the object of the provision in the Bill in regard to advertisements for procuring miscarriage of women. She knew how numerous those advertisements were and how serious the matter was. But even if the Bill did away with those advertisements altogether women would not be safer. If these drugs were taken away women would go in increasing numbers to the women who used some sort of instrument—an unsterilised knitting needle or something of that kind. If the Bill were passed there would also be a grave danger that some men whose work might be of immense value to the health of the nation would in future years be debarred from giving such help.

THE DEBATE ADJOURNED

Mr. J. G. KERR, speaking as a teacher of biology, said it was necessary to realise the immense amount of natural healing that goes on in the animal kingdom. Before he had had time to develop his argument attention was called to the fact that there were not 40 Members present.

The House was "counted out," the debate on the Bill being adjourned.

Public Health (London) Bill

On March 26th, in the House of Lords, Lord BALFOUR OF BURLEIGH moved the second reading of the Public Health (London) Bill. It was, he explained, a consolidation measure promoted by the London County Council after consultation with the Metropolitan Boroughs Standing Joint Committee, and also with the Ministry of Health. Public health legislation was regulated so far as London was concerned mainly by the Public Health (London) Act, 1891, and so far as the provinces were concerned by the Public Health Act of 1875. The law relating to Public Health in London had not been consolidated since the passage of the 1891 Act. Moreover, when that consolidation took place the laws relating to two very important parts of public health legislation—namely, sewerage and drainage and common lodging-houses—were not included in the consolidation. It had now been thought right to bring these within the scope of this Bill. They were at present governed, so far as sewerage and drainage were concerned, by the Metropolitan Management Acts of 1855 and 1862, and so far as common lodging-houses were concerned by the Acts of 1851 and 1853; and all these enactments were now brought within the scope of this consolidation. The public health legislation of London really could only be described at the moment as a jumble. It was in fact a maze, the route to the centre of which was beset with very grave difficulties, and this state of affairs had become an obstacle to good administration. This Bill included the whole of nineteen Acts so far as they applied to London, the whole of four other Acts, except so far as they related to the City of London, and parts of 57 other Acts. The consolidation of 80 Acts of Parliament into one would greatly simplify the administration of the public health legislation of London.

Viscount GAGE, on behalf of the Ministry of Health, stated that the Department regarded the Bill as a valuable clarification of the existing law. Naturally, it would have to be examined with great care by the Joint Committee on Consolidation Bills, but the Government welcomed it in principle.

The Bill was read a second time and referred to the Joint Committee.

National Pension Fund for Nurses

In the House of Lords on March 31st, the Royal National Pension Fund for Nurses Bill was read the third time and passed.

HOUSE OF COMMONS

WEDNESDAY, MARCH 25TH

Medical Examinations at Junior Training Centres

Mr. WILSON asked the Minister of Labour what steps were taken at the juvenile training centres to see that no physical deterioration was taking place; and whether at any period a medical examination took place.—Lieut.-Colonel MUIRHEAD replied: Under the existing scheme local education authorities have power to make their school medical service available to such juveniles attending junior instruction centres as are referred by the superintendent of the centre, and a considerable number of authorities have made such provision. I may add that it has been found in practice that the terms of the statutory scheme governing the provision of those medical services are too restrictive, and my right hon. friend hopes shortly to be able to announce to education authorities generally an amendment of the scheme to enable the school medical officer, if he finds it necessary to do so, to examine boys or girls other than those referred by the superintendent of the course.

THURSDAY, MARCH 26TH

Training Camps

Mr. ANDERSON asked the Minister of Labour what arrangements were made for the medical examination of men before being sent to training camps in view of the heavy work performed there; and how many men were rejected as unfit to enter these camps for the three months ended February, 1936.—Mr. ERNEST BROWN replied: Men are not admitted to instructional centres unless found on medical examination to be fit for admission. Men not fit for heavy work are passed for light work only. During the three months ended February, 1936, 940 men, or about 17 per cent., were rejected for training on medical grounds.

Miss WARD asked the Minister of Labour whether he was yet in a position to make a statement with regard to the providing of medical treatment for young men in accordance with the recommendations of the special commissioner.—Mr. ERNEST BROWN replied: I am proposing to set up a number of special local centres in the special areas of a non-residential character, in which men will receive preliminary training before entering either a Government training centre or an instructional centre. In any case where young men are in need of remedial treatment of a simple character, arrangements will be made for them to receive it in connexion with the centre. Pending the establishment of such centres, where it is necessary I shall hope to arrange as a temporary measure for the admission of such cases to one or two of the residential instructional centres where special arrangements for their treatment will be made.

FRIDAY, MARCH 27TH

Medicine Stamp Duty

Mr. HOLMES asked the Chancellor of the Exchequer the amounts received for medicine stamp duty in the years 1932–33, 1933–34, 1934–35, and the estimated amount to be received in the year 1935–36.—Mr. CHAMBERLAIN replied: The net receipts from the medicine stamp duty for the years 1932–33 to 1935–36 were as follows:—

1932–33	..	£882,006	1934–35		£709,046
1933–34	..	£777,131	1935–36	..	£730,000*

* Estimated.

Playing Fields and Physical Training

Mr. JOEL asked the President of the Board of Education by what date the inquiry into the adequacy or otherwise of playing fields and physical training arrangements at elementary schools would be completed.—Mr. OLIVER STANLEY replied: In January last the Board issued a

circular on physical education, in which they expressed the hope that the authorities would survey the needs of their areas for playing fields and facilities for physical training and organised games. The authorities are showing great interest in the circular, but I think my hon. friend will agree with me that this matter is not one which can be dealt with by means of a survey, subject to a time limlt.

Temporary and Voluntary Patients in Mental Hospitals

Mr. SORENSEN asked the Minister of Health how many temporary and voluntary patients received treatment in mental hospitals in 1935.—Sir KINGSLEY WOOD replied: According to the returns 1532 temporary patients and 9744 voluntary patients received treatment in mental hospitals in 1935. The latter figure is, however, subject to a small deduction to allow for persons who may have been admitted to treatment on more than one occasion during the year.

Antimony in Enamel Ware

Mr. BANFIELD asked the Minister of Health whether he proposed to introduce legislation to give effect to the recommendation contained in No. 73 of Reports on Public Health and Medical Subjects for the total prohibition of antimony in enamelled hollow-ware.—Sir KINGSLEY WOOD replied: I have under consideration the question of legislation on this subject, but I am not at present able to say when it will be possible to introduce a Bill.

Acetic Vinegar

Mr. DENVILLE asked the Minister of Health whether his attention had been drawn to the recent death of a farm labourer at Wainfleet as the result of drinking so-called concentrated vinegar concocted from acetic acid; and, in view of the fact that the sale of acetic acid as vinegar, whether diluted or undiluted, was prohibited by law in almost every country in the world, he would take steps to protect the public from the obvious risks of poisoning which they were running at the present time by prohibiting the sale of acetic vinegar.—Sir KINGSLEY WOOD replied: Yes, Sir. As my hon. friend may be aware, the case referred to has been the subject of a coroner's inquest. The question of the designation of acetic acid mixtures has been noted in connexion with the issues, at present under my consideration, which were raised in the report by the Departmental Committee on the Composition and Description of Food.

Public Health Acts Consolidation

Sir ROBERT TASKER asked the Minister of Health whether he contemplated introducing a Bill this session to consolidate the various Public Health Acts; and, if so, he would take the opportunity to make the necessary amendments consonant with technical progress.—Sir KINGSLEY WOOD replied: The Bill to which my hon. friend refers was introduced in another place in the early part of this week. Within the limits applicable to a Bill whose principal object is the consolidation of the existing law, I hope my hon. friend will find in the Bill an affirmative answer to the second part of his question.

Abortions and Maternal Mortality

Colonel SANDEMAN ALLEN asked the Minister of Health if the maternal mortality returns from his Ministry included those caused by abortions; and what percentage of those figures were due to illegal abortions.—Sir KINGSLEY WOOD replied: The published statistics of maternal mortality in England and Wales (deaths classified to pregnancy and childbearing) include deaths due to abortion or miscarriage with the exception of those classified to criminal abortion on a coroner's certificate, which are separately shown. Full analyses of all forms of maternal mortality and fatal abortion are annually included in the Text Volume of the Registrar-General's Statistical Review.

MONDAY, MARCH 30TH

Temporary Pensions for Neurasthenia and Shell-shock

Mr. ANDERSON asked the Minister of Pensions if he was aware of the ill-effects caused to ex-Service men suffering from neurasthenia or shell-shock by the non-permanence of their pensions; and if he would arrange for all such pensions that had been given continuously for eight years or more to be made permanent.—Mr. R. S. HUDSON replied: Of the total number of pensions in issue for neurasthenia and shell-shock over 91 per cent. have been made permanent. To make awards permanent in cases where the prognosis is still uncertain would not be in the interests of pensioners, but awards for prolonged periods are given in all suitable cases.

Advertisements of Aids for Hearing

Mr. THORNE asked the Postmaster-General whether he was aware of the unfairness to the deaf arising from exaggerated advertising of aids for hearing; if he would decline to accept advertisements for insertion in books of stamps and other post office publications from dealers whose business practices were thus prejudicial to the interest of the deaf; and, before accepting advertisements of aids for the deaf, if he would communicate with the secretary of the National Institute for the Deaf.—Major TRYON replied: I am looking into the question raised by the hon. Member.

Anti-Gas Training

Sir GIFFORD FOX asked the Home Secretary (1) whether any local authorities in the London area were operating his anti-gas order and whether he could give the names of such authorities; and (2) if he would state the number of local authorities who had taken any action in the direction of providing gas-masks and providing anti-gas training.—Mr. G. LLOYD, Under-Secretary, Home Office, replied: A circular letter was sent to local authorities on Feb. 24th inviting them to submit the names of employees who should receive training as instructors in anti-gas measures at the civilian anti-gas school. As the circular letter suggested consultation among neighbouring local authorities, it is too early yet to make any statement about the general response to the circular, but I am quite satisfied with the progress that has been made so far. It is hoped by the end of this year that approximately 600 qualified instructors will have passed through the school. The Government has undertaken to provide respirators and protective clothing at the cost of the Exchequer to persons on air raid precautionary services.

Compensation for Occupational Diseases

Lieut.-Commander FLETCHER asked the Minister of Labour when it was proposed to ratify the international labour conventions on night work for women (revised), workmen's compensation for occupational diseases (revised), hours of work in the sheet-glass industry, and unemployment provision. — Lieut.-Colonel MUIRHEAD, Parliamentary Secretary to the Ministry of Labour, replied: A Bill to enable the draft conventions concerning the night work of women (revised) and hours of work in the sheet-glass industry to be ratified is now before the House. As regards the conventions concerning workmen's compensation for occupational diseases (revised) and unemployment provision, a Command paper announcing the intention of His Majesty's Government to ratify was presented last January, and the necessary Orders of the Privy Council are now being printed. Subject, in the case of the two former conventions, to the passing into law of the Bill referred to, I anticipate that it will be possible very shortly to notify the Secretary-General of the League of Nations of the ratification of all the four conventions.

TUESDAY, MARCH 31ST

Dust in Textile Card-rooms

Mr. RHYS DAVIES asked the Home Secretary whether he was aware that negotiations for the establishment of a voluntary fund to provide compensation for the victims of dust in textile card-rooms had proved abortive; and whether he would now take steps to achieve the object in view by some other means.—Mr. GEOFFREY LLOYD replied: Representations have been received on this matter from the Amalgamated Association of Card Blowing and Ring Room Operatives, who have asked for a deputation to be received. My right hon. friend has asked me to receive the deputation on his behalf, and I

(*Continued at foot of opposite page*)

PANEL AND CONTRACT PRACTICE

Secrecy of Medical Records

THE letter of Iatros II. on p. 742 of our last issue may give rise to misapprehension about the confidential nature of entries on medical records. In the case related a patient on the list of Dr. A. in the area of committee X. secured acceptance as a temporary resident by Dr. B. in the area of committee Y. It is stated that the clerk to the Y. insurance committee returned the record form on the ground that it contained insufficient professional details. Now the only details with which an insurance committee is normally concerned are (1) name and address of the insured person and (2) particulars of society or fund membership. Some committees now credit doctors for temporary residents only when a continuation card, showing that treatment has been given, has been submitted, and in such cases the clerk of the committee (or an officer specially deputed by him) would have to satisfy himself that the continuation card actually indicated that treatment had been given. But the clinical notes are no concern of the insurance committee or of its officers. When the present system of envelope medical records was initiated in 1921 the records had to be transmitted in a separate window envelope which allowed the staff of the committee to see the particulars which affected them and nothing else; this rather cumbersome arrangement was terminated in 1923, at the request of the Insurance Acts Committee, on the definite understanding that the records would be handled either by the clerk himself, or by an assistant specially deputed by him, who would be pledged to respect their confidential nature.

As regards the transmission of continuation cards for temporary residents from one doctor to another in sealed envelopes it is a fact that some committees make this arrangement but it applies only where credits are allowed whether treatment is given or not. In the case of other committees the fact of treatment being given on certain dates (a temporary resident is not temporary for more than three months from the date of arrival) must be made known to the committee in order that the treating doctor may be properly remunerated. Possibly Dr. B. could have overcome his difficulty by inserting the dates together with a reference to his having sent a report on diagnosis and treatment direct to Dr. A. Dr. A. could place the report inside the envelope record, as is the practice with hospital reports, reports of the R.M.O., and the like. It is not explained why Dr. B.'s trouble seems to be restricted to temporary residents; does he make entries of treatment of his permanent patients who suffer from ailments which they would prefer should not be divulged? After all the envelope records also have to pass through the insurance committee office if the patient happens to transfer. But since, as Dr. B. admits the medical service subcommittee have twice recommended deductions from his remuneration for delay in returning medical records, he gets over the difficulty by not returning the records.

Surgery Visitation

A few weeks ago the London insurance committee had an experience (THE LANCET, March 7th, p. 574) which led it to ask the medical benefit subcommittee to consider what steps should be taken to satisfy themselves with the surgery accommodation to be provided by an insurance practitioner. The Insurance Acts Committee have had some qualms about this inquiry, and one of their members, pointing out that it was illegal for any surgery inspection to take place before a doctor had his name on the medical list, expressed the view that even if the inspection was voluntary it whittled away something of the right of every qualified practitioner to have his name on the list. The London representatives explained that the surgery accommodation was sometimes of a kind likely to bring the service into disrepute and friendly advice beforehand would prevent this. They may have had in mind the doctor whose consulting-room, in which he also lived, was approached by forty narrow winding stairs, and whose waiting-room was the landing. It was proposed that a medical man from the panel committee and the clerk of the insurance committee should together visit each new applicant and advise him if necessary.

In Edinburgh the practice is for the clerk of the insurance committee to notify the panel committee of doctors asking to be admitted to the medical list, and if there is reason to suppose from a knowledge of the neighbourhood or of the premises that the accommodation is likely to be unsatisfactory the applicant is visited by two members of the panel committee. Birmingham goes farther. In 1922 the insurance and panel committees there appointed a special joint subcommittee to consider questions relating to the efficiency of the insurance medical service, and under the direction of that subcommittee the doctors' waiting-rooms and surgeries were visited by non-medical members of the insurance committee. The local panel committee have agreed to the proposal that surgeries and waiting-rooms should be visited by non-medical members of the insurance committee, but they think that this should apply chiefly to doctors whose premises have not been previously visited, and that the insurance committee itself should decide when it is a question of revisitation. The panel committee have been asked to appoint four members to serve on a joint subcommittee to deal with the matter.

(*Continued from previous page*)

will arrange to do so at an early date. The position will be further considered in the light of the information furnished by the deputation.

Milk Designations

Sir GIFFORD FOX asked the Minister of Health whether he had now reached any decision with regard to the suggested designations for milk; and whether in any case he proposed to postpone the coming into force of any order on the subject.—Mr. SHAKESPEARE replied: My right hon. friend regrets that he is not yet able to announce his decision on this subject. He is postponing the operation of the new order until June 1st.

WESTMINSTER HOSPITAL.—The discovery is announced that an old banded iron strong-box in which the great seal of this hospital is kept is of Spanish workmanship of the sixteenth century, and is probably a relic of the Spanish Armada. There is a reference to the box in the minutes of the hospital for 1732–33, and it is thought to have been a gift from Mr. Henry Hoare, the banker, to the hospital on its foundation in 1719. A correspondent of the *Times*, however, believes "Armada chests" to be of late seventeenth or early eighteenth century German origin.

MEDICAL NEWS

University of London

Prof. A. K. Henry has been appointed to the university readership in surgery tenable at the British Postgraduate Medical School. Since 1925 he has been professor of clinical surgery in the medical school at Cairo and director of the surgical unit at Kasr-el-Aini Hospital.

Prof. Henry was born in 1886. He studied at Trinity College, Dublin, where he obtained a scholarship and gold medal in natural science in 1909 and graduated M.B. in 1911. In 1914 he came to London as house surgeon and medical registrar at the Cancer Hospital, and in 1915 went abroad to serve as a surgeon, first with the Serbian Relief Fund unit and later with the Royal Army Medical Corps and with the French Army. For his services he was decorated with the Order of St. Sava and made a chevalier of the Legion of Honour. In 1919 he returned to Dublin as assistant surgeon to the Royal Hospital and surgical specialist to the Ministry of Pensions; he also held the post of senior demonstrator in anatomy at the Royal College of Surgeons in Ireland. He took up his present appointment in 1925.

At recent examinations the following candidates were successful:—

D.M.R.

Part I.—S. B. Adams, F. R. Berridge, George Friedlaender, J. J. Magner, R. K. Modi, P. J. B. Murphy, H. E. Offord, Ihsan Qaimaqchi, Atul Rakshit, B. G. Thompson, J. A. Vote, and A. J. O. Wigmore.

Among those who are to receive honorary degrees from the University in connexion with its centenary celebrations this year are Prof. Einstein, Sir William Bragg, P.R.S., Sir George Newman, Sir Joseph Larmor, F.R.S., Mr. H. G. Wells, Lord Snell, and Mr. S. A. Courtauld (chairman of council of the Middlesex Hospital medical school).

University of Manchester

At recent examinations J. A. Hobson and Geoffrey Williamson were successful in the first part of the examination for the diploma of psychological medicine.

On May 20th the hon. degree of D.Sc. will be conferred on Dr. John Beresford Leathes, F.R.S., emeritus professor of physiology in the University of Sheffield.

University of Dublin

At recent examinations at the School of Physic, Trinity College, the following candidates were successful:—

M.D.

Abraham Agranat, James Bell, W. A. Hopkins, and J. C. T. Sanctuary.

M.CH.

C. S. Wilson.

FINAL EXAMINATION FOR M.B., B.CH., B.A.O.

Medicine.—W. A. Gillespie, Max Levy, Neville Jackson, G. C. Retz, G. W. Patterson, W. D. Cheney, and John M'Quillan.

Midwifery.—*E. W. L. Thompson, *Isabelle M. V. Elliott, G. B. Jackson, D. T. Bardon, F. M'D. Byrn, S. E. M'Connell, M. R. W. Spaeck, J. M. Bryson, H. A. Daniels, H. W. W. Good, R. F. Cantan, J. H. A. Jewell, Francis Keane, J. G. Steinbock, Monty Toohey, B. P. P. Berney, Peter Delap, C. W. Greene, W. E. Counihan, G. L. Daly, Hyman Elliman, D. H. A. Irwin, E. T. M'Cartney, Margaret Perry, R. J. Sandys, T. S. Agnew, D. P. Beckett, Cecil Eppel, E. D. Maunsell, P. J. Mullaney, B. G. Kearon, P. G. Patton, D. S. Toole, and J. G. Cunningham.

Surgery.—*W. A. Gillespie, D. J. Hayes, G. H. B. Roberts, Benjamin Rogol, J. C. Roux, G. S. Caithness, Bethel Lapedus, F. T. P. Bergin, J. J. Talbot, P. X. O'Dwyer, R. A. Bond, and R. L. Oakes.

D.P.H.

Part I.—*W. C. B. Harrison, H. O. Mackey, P. B. Robinson, R. I. G. Reid, and H. R. Rogers.

* Passed on high marks.

British College of Obstetricians and Gynæcologists

The following have been awarded the diploma of the college after examination:—

A. M. F. Batty, Anthea A. Benham, J. A. Bentham, E. C. Bryant, H. F. P. Grafton, J. C. Gregory, Mahmoud Ismail, C. F. Krige, T. E. Lennon, E. W. Martindell, J. K. McCollum, William More, Dudley Racker, William Simpson, I. H. K. Stevens, and Anne E. Williams-James.

Atmospheric Pollution

An educational exhibition illustrating smoke abatement and atmospheric pollution is to be opened by Sir Kingsley Wood, the Minister of Health, at the Science Museum, London, in October next. It is being designed to show the harmful effects of polluted atmosphere on health, buildings, vegetation, works of art, fabrics, and food, as well as the difficulty and danger caused to aviation. Further information may be had from the National Smoke Abatement Society, Salisbury-square House, Fleet-street, London, E.C.4.

Hunterian Society

The 116th annual general meeting of this society will be held on Monday, April 6th, at Simpson's Restaurant, Cheapside, at 7.15 P.M. The business of the meeting will begin after dinner, at about 8.30 P.M., and will be followed by a short talk on mild radium therapy by Dr. Howard Humphris.

London Jewish Hospital Medical Society

The annual oration of this society will be delivered at B.M.A. House, Tavistock-square, London, W.C., on Thursday, April 16th, at 4 P.M., by Dr. Robert Hutchison. He will speak on constitutional medicine.

Congress of Sanatoria and Private Nursing Homes

The first International Congress of Sanatoria and Private Nursing Homes will be held in Budapest at the end of September. Further information may be had from the committee of the congress, Margitsziget Sanatorium, Budapest.

Central Association for Mental Welfare

A course for persons engaged in the training of mental defectives in occupation centres or mental hospitals will be held in London from July 4th to 25th. Further information may be had from the secretary of the Central Association for Mental Welfare, 24, Buckingham Palace-road, London, S.W.1.

British Red Cross Society

The King has become patron of this society, which has had the patronage of the reigning monarch since its foundation in 1870. Queen Mary is the president, the Duke of York chairman of council, and the Princess Royal commandant-in-chief of British Red Cross voluntary aid detachments.

London County Council Hospitals

It is stated that the council have spent over £1,321,000 on the hospitals in their charge since they took them over from the old boards of guardians in 1930.

Wingfield-Morris Orthopædic Hospital, Oxford

The Minister of Nepal in London has given £4000 to this hospital to provide a new ward for the treatment of infantile paralysis and £250 for a hard tennis court for the nurses.

Post-graduate Courses in Tuberculosis

Under the auspices of the Joint Tuberculosis Council a post-graduate course on tuberculosis will be given by the medical and surgical staff of the Royal Chest Hospital, City-road, London, E.C., from May 4th to 9th. Short intensive post-graduate courses on modern methods of therapy in tuberculosis of the respiratory system with special reference to collapse therapy will also be given by Dr. Peter Edwards at the Cheshire Joint Sanatorium, near Market Drayton, Salop. The courses will be held from April 21st to 23rd, June 23rd to 25th, and Sept. 22nd to 24th. Inquiries about them should be addressed to the hon. secretary for the council's post-graduate courses, 8, Christ Church-place, Epsom, Surrey.

Royal Sanitary Institute

A meeting of this institute will be held in the Guildhall, Swansea, on Friday, April 17th, at 2.30 P.M., in conjunction with the Welsh branch of the Society of Medical Officers of Health. Prof. R. M. F. Picken will open a discussion on the coördination of general hospital services and the provision of additional accommodation, and Mr. Walter Hunter on the coördination of housing, rehousing, and redevelopment under the housing acts with regional and town planning.

On Tuesday, April 21st, at the house of the institute (90, Buckingham Palace-road, London, S.W.), Dr. E. Kaye Le Fleming, chairman of the physical education committee of the British Medical Association, will open a discussion on the problem of physical education in schools.

THE President of the French Republic has conferred upon Sir Henry Wellcome, LL.D., F.R.S., the Croix d'Officier de la Légion d'Honneur.

Food Production on the Continent

A party of British food chemists is to pay a visit to Holland in May. The tour, which is being arranged by the food group of the Society of Chemical Industry, follows on a similar visit paid last year to Paris and Brussels in which about 40 chemists took part.

Lincoln County Hospital

In connexion with the appeal for the extensions of this hospital, it is announced that £55,000 has been spent. The sum of £39,000 has already been received and a further £61,000 is needed at once.

Princess Alice Hospital, Eastbourne

Last year 1561 in-patients were treated in this hospital as against 1519 in 1934, but the report submitted at the annual meeting on March 20th showed a deficit on the year's working of £958, and an accumulated deficit of £7686. To meet this deficit the governors have reluctantly drawn upon the endowment fund and some legacy money. The hospital was fortunate last year in the amount it received in legacies, but subscriptions and donations fell by £932. The household box scheme however yielded £5866, which is £523 more than in 1934. The hospital has 116 beds, and the daily number of patients during the year was 108 to 110, but further extensions cannot be considered until the finances improve.

Medical Panel for Nurses' Examinations

In our advertisement columns will be found a notice that the General Nursing Council for England and Wales is now seeking the coöperation of doctors in the preliminary as well as the final State examination. Applications are invited (1) from "medical practitioners of good standing who have held a resident or other post on the staff of a hospital and who have experience in teaching" for examinerships in anatomy and physiology, and (2) from present or past members of the staff of hospitals recognised by the Council as complete training schools for nurses, for examinerships in medicine and in surgery. Examinations are held three times a year—in February, May, and October—and the names of examiners are entered on a panel from which those selected to serve are called up as required.

A Patients' Library for the Middlesex Hospital

The value of ample reading matter of all kinds to hospital patients was proved by the libraries for wounded soldiers initiated by Mrs. Gaskell during and after the late war, and there are now few hospitals, either voluntary or municipal, without a supply of books. A large modern library, fully equipped with bookcases and space for 10,000 books, has just been installed in the reconstructed Middlesex Hospital as a gift from the staffs of the *Times* and the *Times* Book Club. The presentation was made by Major Astor, M.P., on March 25th, in the presence of the governors, the medical staff, and voluntary workers at the hospital, and many others interested in the library movement. Prince Arthur of Connaught, in accepting the gift, spoke of the need for such a service for the patients and its help in a sound recovery; the gift came most happily and appropriately from the great national newspaper and its admirable book club. Mrs. Beddington, head librarian, traced the development of hospital libraries from sporadic beginnings to 1930 when organised libraries were generally started. Her voluntary staff rose from 8 last year to 18 this year, and in the 12 weeks from Jan. 1st to March 18th they had issued 4557 volumes, including books of all kinds and in many different languages. This library was one of the training schools for voluntary librarians in association with the Guild of Hospital Librarians recently formed for pooling and disseminating information about the formation and running of patients' libraries. On behalf of the donors Major Astor stated that the gift was the outcome of the realisation that the tedium of illness and convalescence can be relieved by the solace of books; they hoped the library would help the patients along the road to recovery and add something to the pleasant recollection they would carry away with them.

Royal Society of Medicine

The house and library of this society (1, Wimpole-street, London, W.) will be closed from Thursday, April 9th, to Tuesday, April 14th, both days inclusive.

Torbay Hospital

This hospital has only £330 with which to meet its debts of £5868. Subscriptions have again fallen, though a payment of £6555 was made by the contributory scheme.

Leeds General Infirmary

In the latest report of this hospital it is stated that in 1935 £4014 was spent on the in-patient treatment of accident cases of which only £2197 was recovered.

King's College Hospital

The Duke of York has issued an appeal on behalf of this hospital. To complete the buildings now in progress of erection, including the nurses' home, about £85,000 is needed, while alterations to the X ray department and new apparatus will cost £20,000, and the dental department and its equipment £8000. There is an outstanding debt of £57,000. As a beginning a sum of £79,000 has been collected.

Birmingham Hospital Centre

A sum of £770,000 towards the £1,250,000 which it is estimated the new centre will cost has been raised or promised. So far the appeal expenses have not amounted to 1 per cent. A general hospital of 500 beds with nurses' home and the medical school buildings will probably be finished by October, 1937.

Royal Free Hospital

The London (Royal Free Hospital) School of Medicine for Women has received an anonymous gift of £11,000 to endow the Free Woman's Lectureship in Clinical Medicine, and Dr. Una Ledingham, assistant physician to the hospital, has been appointed to the lectureship.—The Aldrich Blake travelling scholarship for 1936 has been awarded to Miss Geraldine Barry, assistant surgeon to the hospital.

Guest Hospital, Dudley

Workpeople's contributions here have reached a record sum of £8435, an increase of £771. The old buildings are decayed and no longer safe and £30,000 is to be spent in erecting a new administration block. At present there are 107 beds and a waiting-list of 284. The wards now being built will add 56 beds to the accommodation.

Appointments

BOMFORD, R. R., B.M. Oxon., M.R.C.P. Lond., has been appointed Medical First Assistant and Registrar at the London Hospital.

BROWN, K. R., M.B. Glasg., F.R.C.S. Edin., Assistant Medical Officer of Health for Harrow.

CARTWRIGHT, F. F., M.R.C.S. Eng., D.A., Hon. Anæsthetist to the Ear, Nose, and Throat Department at St. John's Hospital, Lewisham.

HALL, A. S., M.B. Camb., M.R.C.P. Lond., Tuberculosis Medical Officer for Harrow.

HUGHES, D. O., M.B. Liverp., D.P.H., Assistant Medical Superintendent at High Carley Sanatorium, Preston.

MILLIGAN, P. J. W., B.M. Oxon., Resident Medical Officer at Royal Surrey County Hospital, Guildford.

PERRY, K. M. A., B.Chir. Camb., Medical First Assistant and Registrar at the London Hospital.

PHILLIPS, Prof. MILES H., M.D. Brist., F.R.C.S. Eng., F.C.O.G., Hon. Consulting Gynæcologist to the Rampton State Institution, Retford.

SIMPSON, Prof. GRAHAM S., F.R.C.S. Eng., L.D.S., Hon. Consulting Surgeon to the Rampton State Institution, Retford.

TIMMIS, W. G., M.B. Liverp., Junior Assistant Medical Officer, Wrightington Hospital, Preston.

TOPHAM, E. J. E., M.B. Leeds, D.M.R.E., Junior Assistant Medical Officer in the Radiological Department of the Manchester Royal Infirmary.

WATSON, JEAN C., M.B. Belf., D.P.H., Assistant County Medical Officer of Health for Warwickshire.

Middlesex Hospital.—The following appointments are announced:

GRAY, C. H., M.B. Manch., F.R.C.S., Fracture and Orthopædic Registrar;

JOHNSON, B. R. M., M.R.C.S. Eng., Anæsthetist; and

ROBERTS, F. W., M.B. Lond., Assistant Anæsthetist.

Certifying Surgeons under the Factory and Workshop Acts: Dr. D. F. SUTTIE (Auchtermuchty District, Fife); Frodingham District (Lincolnshire).

Vacancies

For further information refer to the advertisement columns

Ashton-under-Lyne District Infirmary.—H.S. At rate of £150.
Aylesbury, Royal Buckinghamshire Hospital.—Second Res. M.O. At rate of £150.
Beckenham, Bethlem Royal Hospital, Monks Orchard.—Two Res. H.P.'s. Each at rate of £175.
Birmingham, Canwell Hall Babies' Hospital.—Res. M.O. At rate of £250.
Birmingham City.—Sen. Asst. M.O.H. £750.
Birmingham City, P.H. Dept.—Res. Asst. M.O. £400.
Birmingham, Queen's Hospital.—Bacteriologist and Clinical Pathologist. £600. Also Res. Surg. Reg. £125.
Bolton Royal Infirmary.—H.S. £125.
Bradford Children's Hospital.—H.P. £100.
Brighton, Royal Sussex County Hospital and Hove General Hospital.—Hon. Physiotherapeutist.
Bristol Eye Hospital.—Jun. Res. H.S. £100.
Bristol Royal Infirmary.—Hon. Asst. Surgeon. Also Hon. Clin. Asst.
Burnley, Victoria Hospital.—H.P. At rate of £150.
Canterbury, Kent and Canterbury Hospital.—H.S. £125.
Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Three Assts. to Out-patients.
Chelmsford and Essex Hospital.—H.P. and H.S. Each at rate of £150.
City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—H.P. At rate of £100.
Cumberland County Council.—Asst. County M.O.H. and District M.O.H. £800.
Evelina Hospital for Sick Children, Southwark, S.E.—H.S. £120
Exeter, Royal Devon and Exeter Hospital.—H.S. to Ear, Nose, and Throat Dept. £150.
General Nursing Council for England and Wales, 20, Portland-place, W.—Examinerships.
Glasgow, Stobhill Hospital.—Res. Anæsthetist. £350.
Golden-square Throat, Nose, and Ear Hospital, W.—H.S. £100.
Gordon Hospital for Rectal Diseases, Vauxhall Bridge-road, S.W.—Res. H.S. £150.
Halifax and Royal Infirmary.—Second and Third H.S.'s. £175 and £150 respectively.
Hampstead Borough.—Asst. M.O.H. and Clin. Tuber. O. £750.
Hampstead General and N.W. London Hospital.—Cas M.O. for Out-patient Dept. £100. Also H.S. £100.
Hereford, Herefordshire General Hospital.—Hon. Anæsthetist.
Hull Royal Infirmary.—First H.P. At rate of £175.
Isleworth, West Middlesex County Hospital.—Visiting Orthopædic Surgeon. £3 3*s.* per session.
Italian Hospital, Queen-square, W.C.—Hon. Asst. Surgeon.
Kent Education Committee.—Half-time Asst. M.O. £350.
King Edward Memorial Hospital, Ealing.—Jun. Res. M.O. At rate of £150.
Lancaster Royal Infirmary.—Jun. H.S. £130.
Leeds Public Dispensary and Hospital, North-street.—Two H.P.'s. Also Cas. O. and H.S. At rate of £150.
Leeds University.—Chair of Anatomy. £1000.
Leicester City, Education Committee.—Asst. School M.O. £500.
Liverpool Sanatorium, Delamere Forest, Frodsham.—Second Asst. to Med. Supt. £200.
London County Council.—Asst. M.O.'s (Grade I.). Each £350. Two Asst. M.O.'s (Grade II.). Each £250. H.P.'s. Each £120. Clin. Asst. £150. Temp. Dist. M.O.'s. £165 and £142 10*s.* Also Locum Tenens Asst. M.O.'s. Each 6 gns. a week.
London Homœopathic Hospital, Great Ormond-street, W.C.—Hon. Surgeon. Also Hon. Asst. Surgeon.
London School of Hygiene and Tropical Medicine, Keppel-street, W.C.—Asst. M.O. for Northern Rhodesia. £840.
London University.—University Chair of Anatomy at St. Bartholomew's Hospital Medical College. £1000.
Macclesfield General Infirmary.—Second H.S. At rate of £150.
Maidstone, Kent County Ophthalmic and Aural Hospital.—Ophth. H.S. £200.
Manchester, Ancoats Hospital.—Res. M.O. At rate of £150.
Manchester, Christie Hospital and Holt Radium Institute.—Asst. M.O. £400.
Manchester Royal Children's Hospital, Pendlebury.—Res. Surg. O. At rate of £125.
Margate, Royal Sea-Bathing Hospital.—Asst. Med. Supt. £500.
Maudsley Hospital, Denmark Hill, S.E.—Part-time M.O. £300.
Metropolitan Hospital, Kingsland-road, E.—Sen. and Jun. H.P.'s and H.S.'s. Also Cas. O. and Res. Anæsthetist. Each £100.
National Hospital for Diseases of the Heart, Westmoreland-street, W.—Res. M.O. Also Out-patient M.O. At rate of £150 and £125 respectively.
Newport, Mon. Royal Gwent Hospital.—H.S. and Cas. O. Each at rate of £135.
New Zealand, Queen Mary Hospital, Hanmer Springs.—M.O. £650.
Oldham County Borough.—M.O.H. £1200.
Penarth, Glam, Llandough Hospital.—Jun. Res. M.O. £100.
Poplar Hospital for Accidents, East India Dock-road, E.—Asst. Hon. Surgeon.
Preston and County of Lancaster Royal Infirmary.—Res. Surg. O. £300.
Princess Beatrice Hospital, Earl's Court, S.W.—Hon. Clin. Assts.
Radium Institute, 16, Riding House-street, W.—H.S. At rate of £150.
Richmond, Surrey Royal Hospital.—Jun. H.S. At rate of £100.
Rochdale County Borough.—Sen. Asst. Res. M.O., &c. £500.
Rochdale Infirmary and Dispensary.—Second H.S. £150.
Rochester, St. Bartholomew's Hospital.—H.P. £175.
Rotherham Hospital.—H.P. Also Cas. H.S. £180 and £150 respectively.
Royal College of Surgeons of England.—Election of Professors and Lecturers.
Royal Dental Hospital of London, 32, Leicester-square, W.C.—Hon. Asst. Dental Surgeon.
Royal National Orthopædic Hospital, 234, Great Portland-street, W.—H.S. At rate of £150.
Royal Naval Medical Service.—M.O.'s.
St. Mary's Hospital for Women and Children, Plaistow, E.—Res. H.S. and Res. H.P. £155 and £150 respectively.
Salford City.—Asst. M.O. for Venereal Diseases Treatment Centre. £500.
Salisbury General Infirmary.—H.S. At rate of £125.
Sheffield Children's Hospital.—H.S. At rate of £100.
Sheffield University.—Sorby Research Fellowship. £500.
Sheffield, Winter-street Hospital.—Asst. Tuber. O. £350.
Shoreham-by-Sea, Southlands Hospital.—Second Asst. Res. M.O. £300.
Southend-on-Sea General Hospital.—H.P. At rate of £100.
Stamford, Rutland and General Infirmary, Stamford.—H.S. £250.
Surrey County Council.—Ophth. Surgeon. £750.
Swansea General and Eye Hospital.—Cas. O. £150–£175.
Taunton and Somerset Hospital.—H.S. At rate of £100.
University College Hospital, Gower-street, W.C.—Hon. Clin. Asst. in X Ray Dept.
Warwick, King Edward VII. Memorial Sanatorium, Hertford Hill.—Jun. Asst. M.O. £250.
Warwickshire and Coventry Mental Hospital, Hatton.—Two Jun. Asst. M.O.'s. Each £350.
West End Hospital for Nervous Diseases, Welbeck-street, W.—Hon. Clin. Asst. to Psychiatric Out-patient Dept.
West Suffolk County Council.—Asst. County M.O.H. and Dist. M.O.H. £800.
Willesden General Hospital, Harlesden-road, N.W.—Hon. Anæsthetist.
Wolverhampton Royal Hospital.—H.S. At rate of £100.
Worcester Royal Infirmary.—Sen. H.S. £160.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Tutbury (Staffs), Middlewich (Cheshire), Southminster (Essex), and Ribchester (Lancs).

Births, Marriages, and Deaths

BIRTHS

BAIN.—On March 23rd, at Harrogate, the wife of Curtis Bain, D.M. Oxon., of a son.
BELL.—On March 24th, at Bentinck-street, the wife of Arthur C. Bell, F.R.C.S. Eng., of a daughter.
DAVID.—On March 24th to Dr. Olivia F. Digby-Smith, wife of T. N. T. David, Welling, Kent—a son.
DAVIES.—On March 24th, at Leicester, the wife of Dr. D. Justin Davies, of a daughter.
EDWARDS.—On March 24th, the wife of Dr. John A. Edwards, Colnbrook, Bucks, of a son.
KAY.—On March 28th, at Ipswich, the wife of R. S. Kay, M.B., Ch.B. Glasg., of a son.
LUCAS.—On March 24th, at Devonshire-place, W., the wife of Ernst Lucas, L.R.C.P. Edin., M.D. Munich, Hollycroft-avenue, N.W., of a daughter.
MEADOWS.—On March 24th, at Wilbraham-place, S.W., the wife of Swithin P. Meadows, M.D. Lond., M.R.C.P., of a son.
SANDERSON.—On March 26th, at Birmingham, the wife of Dr. A. W. Sanderson, of a son.

MARRIAGES

EMSLIE—ANDERSON.—On March 27th, at King's College Chapel, Aberdeen, Harold L. Emslie, M.B., Ch.B., Edinburgh, to Elizabeth Grace, daughter of Dr. John A. Anderson, Aberdeen.
GROVES—ST. JOHN.—On March 28th, at St. Cross, Winchester, Dr. John Nixon Groves, to Myrtle St. John, niece of Sir Charles and Lady Close.
HINDLE—BOYEN.—On March 25th, in London, Edward Hindle, Regius Professor of Zoology, Glasgow, to Mrs. Ellen M. Boyen, of Gloucester-gate, N.W.
MILES—JAMESON.—On Feb. 3rd, at Chungking, West China, Surg. Lt. Thomas Frank Miles, M.R.C.S. Eng., to Rosemary, younger daughter of the late Engineer Captain T. O. Jameson, R.N., and Mrs. Jameson, of Southsea.

DEATHS

ALSTON.—On March 3rd, at Fish Hoek, South Africa, John Averell Alston, M.R.C.S. Eng., second son of the late Hugh Alston, of Canonbury, London, aged 65.
CHRISTIE.—On March 31st, at St. John's Wood, London, Joseph MacNaughtan Christie, C.B.E., M.D. Glasg., F.R.C.S. Edin., Colonel, N.Z. Medical Corps.
EDER.—On March 30th, after a short illness, at Brendon House, W.1, Montagu David Eder, B.Sc. Lond., M.R.C.S. Eng.
ELAM.—On March 26th, suddenly, George Elam, M.D. Durh., of Barry, Glam.
GARROD.—On March 28th, suddenly, at Cambridge, Archibald Edward Garrod, K.C.M.G., D.M. Oxon., F.R.S., formerly Regius Professor of Medicine in the University of Oxford, Consulting Physician to St. Bartholomew's Hospital, aged 78.
HUME.—On March 29th, at Brecon, Norman Haliburton Hume, M.B., B.S. Durh., Major, I.M.S., retd.
O'DONNELL.—On March 23rd, at Seamount Nursing Home, Galway, Dorothy O'Donnell, M.B., B.Ch., dearly beloved wife of Michael O'Donnell, M.D., M.R.C.P.I., Edanam Lodge, Sea-road, Galway.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

THE OVERCLOTHED BOY

By John Riddell, M.D. Glasg., D.P.H.
ASSISTANT MEDICAL OFFICER OF HEALTH FOR THE COUNTY OF STIRLING

"A child should be clothed lightly, so that its activity is not hindered, but warmly enough so that its heat-productive power is not over-taxed." In these words Sir Leonard Hill [1] gives an objective excellent to strive for, but very difficult to reach. How many parents are governed by any such criteria in considering the clothing of their children? How many doctors even?

The probability is that the main factor influencing choice is "fashion." This almost entirely decides the types of garment to be worn. Individuality can only exist in minor differences in detail and in quantity, as expressed by the number of layers of clothing. Fortunately, since the beginning of the present century, fashion has tended to encourage approach towards the above standard. Perhaps it may sometimes have been made an excuse for an excessive zeal in discarding clothing, but on the whole much good has resulted. This is especially so in the case of girls. With boys, fashion has changed but little, and far too much clothing is still worn. An attempt should be made to remedy this.

To illustrate the changes which have taken place, and also those which still require to be effected, the following inquiry was undertaken among pupils attending schools in Stirling. The scholars come almost entirely from mining and working-class families. They were weighed with and without their indoor clothes (excluding shoes or boots) first at the end of August and again in the latter half of December. The average temperatures (Fahrenheit) over the periods of the examinations are given below—representative samples of summer and winter weather.

	Maximum.		Minimum.	
	Open.	Screen.	Open.	Screen.
August	72·5	61·1	49·0	48·8
December ..	44·5	37·4	29·0	29·6

With regard to the amount of clothing worn, very striking differences at once become apparent as shown in Table I.

TABLE I.—*Weight of Clothing*

Weight of clothing in lb.	Number of cases in—			
	GIRLS.		BOYS.	
	Summer.	Winter.	Summer.	Winter.
½ –1 ..	43	6	1	—
1 –1½ ..	104	29	15	—
1½–2 ..	94	38	43	5
2 –2½ ..	50	77	85	18
2½–3 ..	21	52	92	27
3 –3½ ..	12	43	105	47
3½–4 ..	2	23	103	57
4 –4½ ..	—	16	68	69
4½–5 ..	—	3	34	72
5 –5½ ..	—	2	28	71
5½–6 ..	—	1	7	37
6 –6½ ..	—	1	4	32
6½–7 ..	—	—	1	18
7 –7½ ..	—	—	—	10
7½+ ..	—	—	—	11
Total ..	326	291	586	474

The differences between the sexes and in different seasons are noteworthy, but even with the same sex in the same season, individual variation is apparently very great. Universal factors which might affect this are age, height, and weight, the two latter being to a certain extent, of course, correlated with the former.

TABLE II.—*Clothing at Various Ages*

BOYS

Age-group in years.	Summer.					Winter.				
	Cases.	Average age.		Aver. wt. of clothing.		Per cent. gross wt.	Cases.	Average age.		Aver. wt. of clothing.		Per cent. gross wt.
		Y.	M.	lb.	oz.			Y.	M.	lb.	oz.	
XI. ..	40	11	8	3	2	4·2	17	11	8	4	1	5·2
XII. ..	195	12	6	2	14	4·0	142	12	7	4	5	5·3
XIII. ..	242	13	8	3	1	3·9	193	13	6	4	7	5·1
XIV. ..	76	14	4	3	13	3·7	84	14	4	4	13	4·8
XV. ..	20	15	5	4	7	3·8	25	15	3	6	8	4·9
XVI. ..	13	16	5	4	10	3·7	13	16	5	6	7	5·2
XI. to XVI.	586	—		—		3·9	474	—		—		5·1
GIRLS												
XII. ..	112	12	6	1	11	2·0	89	12	7	2	6	2·8
XIII. ..	166	13	6	1	10	1·7	136	13	6	2	13	2·5
XIV. ..	40	14	4	1	8	1·5	52	14	4	2	9	2·6
XV. ..	8	15	3	1	12	1·6	14	15	4	2	12	2·6
XII. to XV.	326	—		—		1·8	291	—		—		2·7

Y. = years. M. = months.

Table II. shows the effect of varying age and brings out the contrast between boys and girls. While the amount of clothing worn by girls changes very little with increasing age, that worn by boys increases markedly. In both cases, however, the weight of clothing expressed as a percentage of the clothed body-weight tends to decrease slightly with advancing age.

Table III. shows the relationship between height and weight of clothing, while Table IV. shows the relationship between the latter and clothed weight of the children. Again the amount of girls' clothing varies little, while that of boys increases, with both height and weight.

The present investigation shows, then, that girls between the ages of 12 and 15 years wear clothing amounting to about 1·8 per cent. of their weight in summer and 2·7 per cent. in winter, while the clothing of boys between the ages of 11 and 16 years amounts to about 3·9 per cent. of their weight in summer and 5·1 per cent. in winter or roughly twice that of the girls.

Comparing this with the results of previous inquiries is both interesting and illuminating. Quetelet [2] in Paris in 1835, presumably working in conditions comparable to our summer temperature, allowed 5·5 per cent. of the gross weight in the case of boys and 4·2 per cent. for girls. Bowditch,[3] of Boston, in 1875 found that the average amount to be allowed for clothing over the whole year was between 9·9 per cent. and 7·9 per cent. for boys and 5·8 per cent. and 7·3 per cent. for girls, depending on the age (similar to those in the present investigation), but he almost certainly included footwear as part of the clothing. Schmidt Mounard [4] in 1901 concluded that the weight of clothing in the case of boys from six to fourteen years of age was 7·75 per cent. of the gross

TABLE III.—WEIGHT OF CLOTHING IN RELATION TO HEIGHT OF CHILD

Height in inches	51–53		54–56		57–59		60–62		63–65		66–68	
—	Cases.	Weight of clothing. lb. oz.	Cases.	Weight of clothing. lb. oz.	Cases.	Weight of clothing. lb. oz.	Cases.	Weight of clothing. lb. oz.	Cases.	Weight of clothing. lb. oz.	Cases.	Weight of clothing. lb. oz.
GIRLS.												
Summer ..	18	1 9	82	1 10	100	1 9	96	1 10	22	2 0	4	1 7
Winter ..	9	2 1	70	2 6	103	2 9	82	2 10	23	2 8	3	2 15
BOYS.												
Summer ..	73	2 11	206	3 0	160	3 4	81	3 11	37	4 9	15	4 11
Winter ..	56	3 13	158	4 4	136	4 9	65	4 13	35	5 13	15	6 12

Several cases were omitted as they were outside the height limits.

TABLE IV.—WEIGHT OF CLOTHING IN RELATION TO WEIGHT OF CLOTHED CHILD

Gross weight in lbs. ..	56–69		70–83		84–97		98–111		112–125		126–139	
—	Cases.	Weight of clothing. lb. oz.	Cases.	Weight of clothing. lb. oz.	Cases.	Weight of clothing. lb. oz.	Cases.	Weight of clothing. lb. oz.	Cases.	Weight of clothing. lb. oz.	Cases.	Weight of clothing. lb. oz.
GIRLS.												
Summer ..	38	1 10	87	1 9	97	1 10	65	1 10	30	1 12	6	1 12
Winter ..	20	2 4	78	2 6	88	2 11	68	2 7	29	2 8	5	2 10
BOYS.												
Summer ..	75	2 9	240	3 0	150	3 7	57	3 10	34	4 6	18	4 14
Winter ..	49	3 12	176	4 3	135	4 9	55	4 15	32	5 10	18	6 7

Several cases were omitted as they were outside the weight limits.

weight and in the case of girls 8 per cent. In 1921 Baldwin [5] noted a change in conditions and stated: "It has been found that the weight of children's clothing worn at the present day is considerably less than the earlier estimates by other investigators. Also the range of variation in the clothing of different children and at different seasons is not so wide as has been supposed." In 1923, in conjunction with Wood,[6] he gave the weight of clothing as 4 per cent. of the nude weight in the case of boys and 2–2·5 per cent. in the case of girls.

The trend is therefore perfectly definite, but it has not been so marked in the case of boys as with girls. It is now commonly accepted that reduction of clothing, allowing more benefit to be derived from the sun and air, not only does no harm, but develops an increased immunity to those diseases commonly attributed to the influence of cold. On the other hand, it must only be put forward as part of the campaign for better health. To quote Leonard Hill [7] once more: "The scanty clothing of women should not result in overheated stuffy houses and hotels in which the air becomes polluted with dust and microbes which occasion respiratory disease. The clothing should be the lightest that can be borne without the wearer being pinched with cold or feeling the need of artificial heat when the weather is mild. It should not be so heavy as to reduce the heat production of the body to a lower level and interfere with the taking of vigorous exercise. . . . It is only the old, the underfed and feeble who require very warm clothing, those whose fire of life is weak and cannot be fanned up by vigorous exercise."

What lead is the medical profession giving to help the boys?

REFERENCES

1. Hill, Sir L.: Practitioner, 1930, cxxv., 112.
2. Quetelet, A.: Sur l'homme et le développement de ses facultés, Paris, 1835.
3. Bowditch, H. P.: The Growth of Children. 8th Annual Report, Massachusetts Board of Health, 1875, vol. viii., p. 273.
4. Schmidt Mounard, K.: Uber den Wert von Körpermassen zur Beurteilung des Körperstandes bei Kindern, Jahrb. f. Kinderh., 1901, liii., 50.
5. Baldwin, B. T.: Physical Growth of Children, New York, 1921.
6. Baldwin, B. T., and Wood, J. D.: Height-weight-age Tables for School-children, Mother and Child, 1923, vol. iv. (inset supplement).
7. Hill, Sir L.: Practitioner, 1928, cxxi., 359.

ESTIBIUS PSYCHALETHES

William Coward, who more than once found it convenient not to append his name to his works, but who originally employed the above curious pseudonym, is the subject of an essay in a recent issue of the Annals of Medical History.[1] His memory is worth rescuing because he was such a singular man. He was born at Winchester and in Dr. Burton Chance's essay he is credited with having been at Winchester College. He was at any rate a classical scholar, graduated in arts from Wadham College, Oxford, in 1677, and was shortly afterwards elected a fellow of Merton when he graduated in medicine. He seems to have practised in Northampton for a time and also in London, but no evidence as to his having obtained any regular position is forthcoming, though he was at one time "a candidate for qualification" at the Royal College of Physicians of London. His literary performances make curious reading. He started authorship by publishing a Latin version of Absalom and Achitophel which was not accepted by the University of Oxford for publication, but was

[1] Chance, B.: Annals of Medical History. New York: Paul B. Hoeber, 1935, vol. vii., p. 559.

afterwards published for him by a friend under the assumed name of Walter Curle. The effort brought him no great credit and he turned to medical literature, writing several books of a theologico-metaphysical sort, one of which, on volatile ferments, received the approval of the president and censors of the Royal College of Physicians of London. With one of his productions he obtained real publicity, and his Greek pseudonym suggests its purport in a vague manner. This was an essay on mortality entitled Second Thoughts Concerning the Human Soul, and its views aroused such serious controversy that Coward was called to the bar of the House of Commons to explain, and if necessary apologise for, his doctrines. He professed his readiness to the House of Commons to recant any views which might be considered irreligious or immoral, and it will be seen from the title-page that he would have much to explain to the orthodox thinker of the day. It runs thus :—

"SECOND THOUGHTS
Concerning
HUMAN SOUL,
Demonstrating the Notion of Human Soul,
As believ'd to be a SPIRITUAL IMMORTAL
SUBSTANCE, united to Human Body,
To be a Plain
HEATHENISH INVENTION,
And not Consonant to the Principles of
PHILOSOPHY, REASON, OR RELIGION;
But the Ground only of many
Absurd, and Superstitious Opinions,
Abominable to the Reformed Churches,
And Derogatory in General to
TRUE CHRISTIANITY"

The House considered that the book was offensive and ordered it and other of Coward's works to be burnt by the common hangman. As further editions of the incriminated works appeared it may be presumed that the tenets and theories were modified; certainly his zeal for authorship remained, and he returned to the composition of religious poems. Lastly, in his work on diseases of the eye, entitled Ophthalmiatria, he came into medical notice. This small book written in Latin appeared in 1706 and according to Dr. Chance the author must have been considerably indebted to others for his representation of the knowledge of his day, but his theological views probably made the text more unintelligible. Sir Hans Sloane undertook the supervision of the proofs and appears to have differed with the author on religious points. The altercation, as narrated by Dr. Chance, gives the honours to Coward who did not see his way to making certain modifications in order "to add something in commendation of the 'tender consciences' of physicians in point of religion." Such modern ophthalmologists as have had the equipment and curiosity to peruse Coward's contribution to science have found nothing in his pages to show any original research or practical teaching. But it seems that from the bibliophile's point of view his books have the value of their rarity.

WILLESDEN WOMEN'S WELFARE CENTRE

WE have received the first report of this new centre which covers the period from June to December, 1935. It is a promising little document. Those behind the birth control clinic appealed at the start for £200, a sum which they felt would justify them in taking action. The immediate return amounted to only one-third of that sum, but none the less those responsible for the movement felt that the need for assistance in the district was such that a commencement ought to be made; already they are able to prove that valuable work is being done, and the Willesden borough council has come to their assistance by providing cheerful and hygienic premises. But the rent has only been paid in accordance with a special donation, and very little money is left. Any contribution, therefore, will be gratefully received by the honorary treasurer, Mrs. I. Bedford, Lake View, The Vale, Hampstead.

"MUSIC HATH CHARMS——"

THE Rev. S. C. TICKELL, writing from the vicarage, Latton with Eysey, calls attention to the influence of music in cases where the symptoms are dependent on mental strain and anxiety. No doubt he has had in mind that David's first appearance in biblical history is in the character of "a cunning player on the harp," when it is recorded that he performed so well that Saul, who was troubled with an evil spirit from God, was refreshed and was well—at any rate for a period though his relapse was dramatic. Mr. Tickell will have on his side many churchgoers when he accuses the musical services of the church of being too dreary and didactic to minister to the diseased mind, and he suggests that this position could be remedied if organists had an opportunity for suitable inprovisations which might attain the wider circulation of being broadcast. Mr. Tickell has a great advocate on his side when extolling music as mental refreshment, for Burton in the "Anatomy of Melancholy" devotes considerable space, and much of his quaint erudition, in enlarging on the theme. Burton's great work must rank high in that considerable list of classics which many quote, which more talk about, and which few read. An essay by Dr. J. L. Miller in the current issue of the *Annals of Medical History* should persuade readers to turn to Burton's deeply interesting and often highly amusing pages. Undoubtedly the book is made difficult reading by the prolific citation of the classics, and not those read as school books, but as a rule the passages are not difficult to follow taken with their English contexts. Burton was a learned priest, not a doctor, but it is always admitted that in his fantastic way he was a considerable psychologist. Dr. Miller has evidently read the "Anatomy of Melancholy" with gusto, as Sterne and Lamb, and possibly even Milton, have done before him. And those who are encouraged by his essay to follow suit will be rewarded.

FATHERS AND MATERNITY

FOR some years fathers' councils and committees have been springing up here and there in connexion with infant welfare centres and similar institutions. The Central Union of Fathers' Councils was formed to coördinate their activities, and it held its fifth annual conference in London on March 25th. Dr. G. F. Buchan, medical officer of health for Willesden, who presided, said that mothers should have at their disposal the best and most efficient service the community could provide. The maternity hospital should be in the charge of an obstetric specialist. He instanced the situation in Willesden, where in the municipal maternity hospital there were 64 beds, (comprising 9 antenatal, 4 isolation, 43 lying-in, and 8 labour beds). The maternal death-rate at the hospital during the last five years had been 1 per 1000, and in the last 2500 cases there had been no deaths at all.

Speaking on the psychological aspect of maternal welfare Dr. Grantly Dick Read stated his conviction that the rôle of the man was essentially that of the protector and provider, while the nature of woman was primarily dependent, a quality which became particularly apparent during pregnancy. The expectant mother relied on her husband not only for maintenance but also for a sympathetic understanding of her own state of mind. It was important for the husband to express pleasure and satisfaction at the prospect of a child. "The man who does not want his coming child may start a series of thoughts in his wife's mind which will make pregnancy a misery," said Dr. Read. "Nothing is more likely to cause unsuccessful childbirth than unhappiness." The father should assume the responsibility of ejecting relatives who told scare stories, and the expectant mother should not be allowed to hear talk of maternal mortality, for she was extremely suggestible.

NEW PREPARATIONS

NOVURIT SUPPOSITORIES.—Novurit is an organic mercurial diuretic akin to Salyrgan, and containing 5 per cent. of theophylline. It is inactive when taken by mouth and has occasionally caused local pain when given in the usual way by intravenous or intramuscular injection. The manufacturers (Chinoin Chemical and Pharmaceutical Works, Hungary) have therefore devised suppositories containing 0·5 gramme of Novurit in cocoa-butter for use wherever injections of the drug are inadvisable or inconvenient. In our issue of Jan. 4th (p. 17) Dr. John Parkinson and Dr. W. A. R. Thomson reported a trial of this suppository in ten cases of congestive heart failure, from which they concluded that it is a safe and effective diuretic—"an addition of value in the treatment of dropsy." Given by rectum Novurit does not evoke quite so large a flow as when injected intravenously, but rectal administration is often more practicable, and no toxic or irritative action was observed in these ten cases. The manufacturers state that there are no side-effects and that the efficacy of the drug does not diminish on prolonged use; they recommend it for cardiac œdema, fluid in serous cavities, nephrosis, eclampsia, and other conditions—but not in cases with diarrhœa or acute or chronic glomerulonephritis. The suppositories are obtainable in this country from Messrs. W. Martindale, 50, Wigmore-street, London, W.

NORMO-GASTRINE is a preparation of aluminium silicate made up in tablets and intended for the treatment of excessive gastric acidity. The main advantage claimed is that it is not alkaline and does not operate against hydrochloric acid in the low percentages found in the normal stomach; nor does it affect the activity of pepsin. Its use is said to obviate the disadvantages associated with generation of carbon dioxide in the stomach or with imperfect digestion due to weakening of the gastric juices. The makers are Burgoyne, Burbidges and Co., Ltd., East Ham, E.6.

LUTEOANTIN, sold by Gedeon Richter (Great Britain) Ltd., 1, Hardwick-street, E.C.1, is a preparation of gonadotropic hormone obtained from the anterior pituitary, and its luteinising power is said to be several times as great as that of similar hormones extracted from pregnancy urine. In clinical practice it is meant to serve as substitute for the more expensive corpus luteum hormone (progestin), and it is held to be useful in various forms of excessive uterine hæmorrhage, and in dysmenorrhœa, hyperemesis, and habitual and threatened abortion. Luteoantin is issued in double ampoules, one of which contains the powdered hormone and the other a solvent. Each ampoule is stated to contain 50 mouse units.

ANAHÆMIN B.D.H.—Last year Dakin and West recorded a substantial advance towards isolation of the active principle which cures pernicious anæmia. They extracted from liver the light buff-coloured powder, soluble in water, which is now known as anahæmin, and in our issue of Feb. 15th Dr. Ungley and Profs. Davidson and Wayne were able to report excellent clinical results from the use of this concentrated extract as prepared in this country by the British Drug Houses Ltd. (London, N.1), who now market it under the name Anahæmin B.D.H. The substance is so potent that the manufacturers believe that a monthly injection of 200 mg. (or 2 c.cm. of the solution they supply in ampoules) will probably be sufficient to maintain a normal blood picture, and in view of this small dosage they claim that the use of anahæmin is not only convenient but also economical. The preliminary observations of Dr. Ungley and his colleagues suggested that the new preparation "may prove to be at least as potent as other liver extracts in the treatment of the neurological manifestations of pernicious anæmia," and it is hoped that it may be found to possess all the therapeutic properties of liver in this disease.

Messrs. Allen and Hanburys Ltd. announce that EUCORTONE (extract of suprarenal cortex) is now to be issued in a more concentrated form, having 2½ times the potency of the previous preparation and a correspondingly lower dosage. It will be supplied in ampoules of 10 c.cm. instead of 25 c.cm. and their price will be 30*s.* instead of 36*s.*

From their new premises at Greenford GLAXO LABORATORIES LTD. have issued a revised catalogue including particulars of their detoxicated vaccines, vitamin and antivirus preparations, pharmaceutical products, and foods. A price list gives the discount charges to the medical profession.

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, April 6th.

United Services. 4.30 P.M. Annual general meeting. Surg. Commander M. B. Macleod: Vision in the Services with Special Attention to Colour Vision.

TUESDAY.

Orthopædics. 5.30 P.M. (Cases at 4.30 P.M.) Mr. Arthur Eyre-Brook: Results of Treatment in Perthes Disease. Dr. L. J. Rae: 1. Chondrodystrophy with Multiple Chondromata. Mr. S. A. S. Malkin: 2. Fusion of Transverse Processes of the Fourth and Fifth Lumbar Vertebræ. 3. Osteochondritis of the Capitellum. Mr. C. Hope Carlton: 4–5. Central Dislocation of the Femur. 6. Lesion of the Vertebral Bodies for Diagnosis. Mr. B. H. Burns: 7. Tear of the Supraspinatus Tendon. Mr. Eric Lloyd: Director for the Smith-Petersen Nail in Neck of Femur Fractures.

HUNTERIAN SOCIETY.

MONDAY, April 6th.—8.30 P.M. (Simpson's Restaurant, Cheapside), Annual general meeting. Dr. Howard Humphris: Mild Radium Therapy.

SOUTH-WEST LONDON MEDICAL SOCIETY.

WEDNESDAY, April 8th.—9 P.M. (Bolingbroke Hospital, Wandsworth Common, S.W.), Mr. Hamilton Bailey: Swellings in the Neck.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

THURSDAY, April 9th.—8.30 P.M. (11, Chandos-street, W.), Dr. Dennis Carroll: Some Problems in the Treatment of Delinquency.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn-fields, W.C.

TUESDAY, April 7th.—5 P.M., Sir Robert Muir: Malignancy with Illustrations from the Pathology of the Mammal. (Lister Lecture.)

UNIVERSITY OF BIRMINGHAM.

TUESDAY, April 7th.—3.30 P.M. (General Hospital), Mr. Percival Mills: The Treatment of Common Fractures.

INSTITUTE OF HYGIENE, 28, Portland-place, W.

WEDNESDAY, April 8th.—3.30 P.M., Prof. James Young: Sociological Problems Affecting Women's Health.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

MONDAY, April 6th.—2.30 P.M., Dr. C. Kaufmann, Berlin: Clinical Uses of the Female Sex Hormones.

TUESDAY.—2.30 P.M., Dr. Janet Vaughan: Supravital Technique in Hæmatology.

WEDNESDAY.—Noon, Clinical and pathological conference (medical). 2.30 P.M., Clinical and pathological conference (surgical).

THURSDAY.—2.15 P.M., Dr. Duncan White: Radiological demonstration. 2.30 P.M., Dr. W. S. C. Copeman: Arthritis. 3 P.M., Dr. Chassar Moir: Operative Obstetrics.

Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics or operations, obstetric and gynæcological clinics or operations.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.

MONDAY, April 6th, and WEDNESDAY.—8 P.M. (INFANTS HOSPITAL, Vincent-square, S.W.), Primary F.R.C.S. course in anatomy and physiology (open only to members).

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W.

TUESDAY, April 7th.—5.30 P.M., Dr. John Parkinson: Palpitation.

MANCHESTER ROYAL INFIRMARY.

TUESDAY, April 7th.—4.15 P.M., Mr. H. H. Rayner: The Trend of Surgery in the Post-war Period.

LEEDS GENERAL INFIRMARY.

TUESDAY, April 7th.—3.30 P.M., Mr. Pyrah: 1. Demonstration of Some Surgical Cases. 2. Short Paper on Treatment of Some Minor Urological Disorders in General Practice.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION

WEDNESDAY, April 8th.—4.15 P.M. (Lock Hospital, 41, Rottenrow), Dr. David Watson: Venereal Disease in Women.